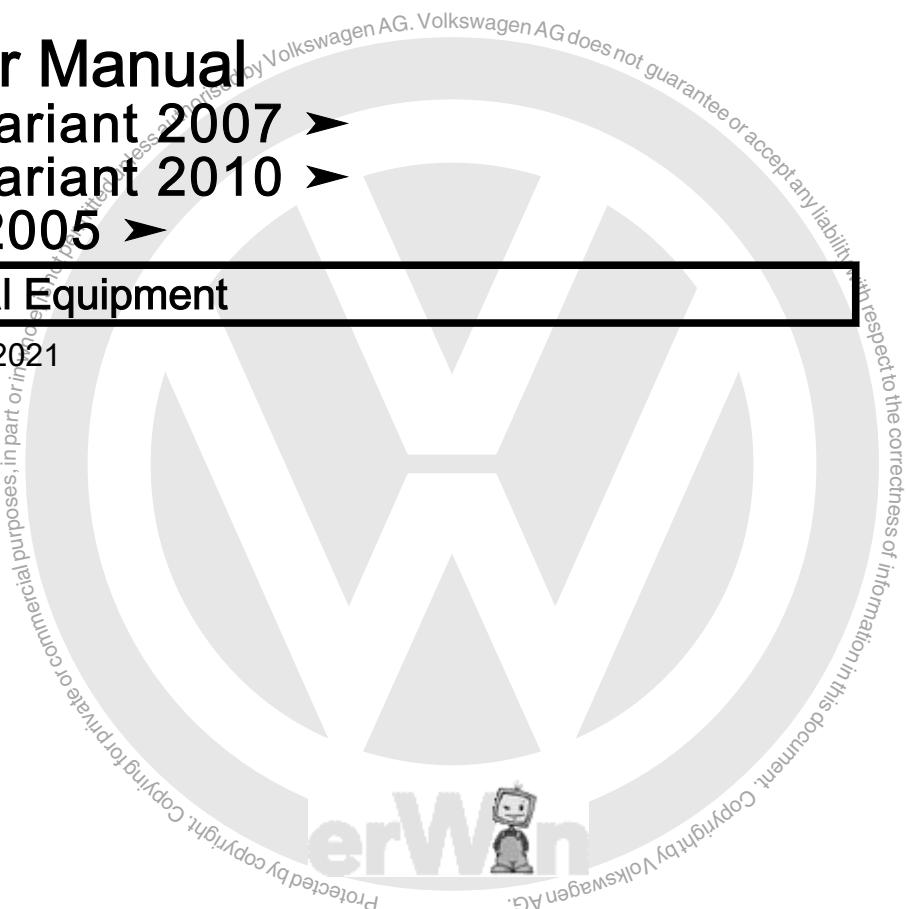




## Repair Manual Golf Variant 2007 ➤ Golf Variant 2010 ➤ Jetta 2005 ➤

### Electrical Equipment

Edition 10.2021





## List of Workshop Manual Repair Groups

### Repair Group

- 27 - Battery, Starter, Generator, Cruise Control
- 90 - Instruments
- 92 - Wiper/Washer Systems
- 94 - Exterior Lights, Switches
- 96 - Interior Lights, Switches
- 97 - Wiring



Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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## 27 – Battery, Starter, Generator, Cruise Control

### 1 General Information

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#### 1.1 Battery

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⇒ [a1.1.2 nd Safety Precautions", page 1](#)

⇒ [P1.1.3 ost/Terminal", page 1](#)

⇒ [C1.1.4 ecking", page 2](#)

⇒ [C1.1.5 arging", page 2](#)

##### 1.1.1 Battery Types



All instructions and information on this chapter can be found in the repair manual "Electrical Equipment General Information". A link to this repair manual is not possible at this time due to technical reasons. Refer to repair manual "Electrical Equipment General Information" in ELSA.

##### 1.1.2 Warnings and Safety Precautions



All instructions and information on this chapter can be found in the repair manual "Electrical Equipment General Information". A link to this repair manual is not possible at this time due to technical reasons. Refer to repair manual "Electrical Equipment General Information" in ELSA.

##### 1.1.3 Battery Post/Terminal



All instructions and information on this chapter can be found in the repair manual "Electrical Equipment General Information". A link to this repair manual is not possible at this time due to technical reasons. Refer to repair manual "Electrical Equipment General Information" in ELSA.



## 1.1.4 Battery, Checking



All instructions and information on this chapter can be found in the repair manual "Electrical Equipment General Information". A link to this repair manual is not possible at this time due to technical reasons. Refer to repair manual "Electrical Equipment General Information" in ELSA.

## 1.1.5 Battery, Charging



All instructions and information on this chapter can be found in the repair manual "Electrical Equipment General Information". A link to this repair manual is not possible at this time due to technical reasons. Refer to repair manual "Electrical Equipment General Information" in ELSA.

## 1.2 Starter, Sevicing

### Replacing the Starter -B- on a vehicle with the start/stop system

Cycling stability is increased and the starter ring amplified due to the greater demands placed on the starter -B- when using the active start/stop system.

Make certain that the Starter -B- has the correct replacement part number when replacing it. Refer to Parts Catalog. The components of the Stop/Start System do not have a special markings and look the same as the other components on the outside.

## 1.3 Cruise Control System



All instructions and information on this chapter can be found in the repair manual "Electrical Equipment General Information". A link to this repair manual is not possible at this time due to technical reasons. Refer to repair manual "Electrical Equipment General Information" in ELSA.

## 1.4 Start/Stop System

Additional information:

- ◆ Refer to Owner's Manual.
- ◆ Refer to Owner's Manual.
- ◆ Refer to Wiring diagrams, Troubleshooting & Component locations.

### General Information

The Start/Stop System is designed to save fuel. The engine turns off automatically when the vehicle is standing and turns back on when driver is ready to continue driving. The Stop/Start System works automatically when the vehicle is driven for approximately four seconds at a minimum of 3 km/h.



## DTC recognition and display

The Start/Stop system is integrated as a function in the Engine Control Module -J623- software.

The Engine Control Module -J623- is equipped with OBD.

Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.

## Battery recharging or battery jump start terminal on vehicles with the start/stop system

First connect the positive terminals to a charging cable and then connect the vehicle body ground. This ensures that the Battery Monitoring Control Module -J367- is not bridged. Charging the battery directly on the negative terminal bridges the Battery Monitoring Control Module -J367- and prevents the Battery Monitoring Control Module -J367- from recording the battery data during the charging process. The values stored in the Data Bus On Board Diagnostic Interface -J533- regarding the battery condition no longer match the values for the charged battery -A-.

## Replacing the battery -A- on a vehicle with the start/stop system

Vehicles with a start/stop system only have an AGM battery instead of the typical lead battery due to its higher cycle life.

Refer to the Parts Catalog for the correct part names. The components of the Stop/Start System do not have a special markings and look the same as the other components on the outside.

### The following parts comprise the start-stop system:

- ◆ Battery -A-. Refer to [⇒ D5.1 Disconnecting and Connecting](#), [page 16](#).
- ◆ Generator -C-. Refer to [⇒ G2.3 Generator Overview](#), [page 8](#).
- ◆ Voltage Regulator -C1-. Refer to [⇒ R5.11 Regulator](#), [page 57](#).
- ◆ Starter -B-. Refer to [⇒ S2.2 Starter Overview](#), [page 6](#).
- ◆ Brake Lamp Switch -F-
- ◆ Clutch Pedal Switch -F36-
- ◆ Start/Stop Mode Button -E693-. Refer to [⇒ S2.4 Start/Stop Mode Button E693](#), [page 11](#).
- ◆ Engine Coolant Temperature Sensor -G62-
- ◆ Accelerator Pedal Position Sensor -G79-
- ◆ Transmission Neutral Position Sensor -G701-
- ◆ ABS Control Module -J104-
- ◆ Climatronic Control Module -J255-
- ◆ Display Unit In Instrument Cluster -J285-. Refer to [⇒ C1.1 Cluster](#), [page 63](#).
- ◆ Battery Monitoring Control Module -J367-. Refer to [⇒ B5.4 Battery Monitoring Control Module J367](#), [page 21](#).
- ◆ Power Steering Control Module -J500-
- ◆ Vehicle Electrical System Control Module -J519-. Refer to [⇒ V5.5 Vehicle Electrical System Control Module J519](#), [page 439](#).



- ◆ Voltage Stabilizer -J532-. Refer to [⇒ V5.12 Voltage StabilizerJ532 ", page 59](#).
- ◆ Data Bus On Board Diagnostic Interface -J533-. Refer to [⇒ D5.6 Data Bus On Board Diagnostic InterfaceJ533 ", page 449](#).
- ◆ Engine Control Module -J623-

The Voltage Stabilizer -J532- is installed inside the instrument panel behind the glove compartment. It stabilizes the voltage fluctuations in the vehicle electrical system to 12 volts, which are caused by the stop/start system.

**This is what happens if the Voltage Stabilizer -J532- is faulty:**

If the voltage stabilizer -J532- is faulty, vehicle equipment such as the radio, the radio/RNS or the telephone will reset if the voltage supply is insufficient when the starter -B- is operated. If the start/stop system for the above-mentioned electrical consumers reset each time the engine starts, then this indicates a defective voltage stabilizer -J532-. Currently, no entry is logged (in either the Data Bus On Board Diagnostic Interface -J532- or the Vehicle Electrical System Control Module -J533- DTC memory) for a failed voltage stabilizer -J519- function. If the radio, the radio/RNS and the telephone all malfunction at the same time, first check the fuse for the voltage stabilizer -J532-. Refer to Wiring diagrams, Troubleshooting & Component locations.





## 2 Description and Operation

- ⇒ [O2.1 overview", page 5](#)
- ⇒ [S2.2 tarterB Overview", page 6](#)
- ⇒ [G2.3 eneratorC Overview", page 8](#)
- ⇒ [S2.4 tart/Stop Mode ButtonE693 ", page 11](#)

### 2.1 Battery Overview

**Battery recharging or battery jump start terminal on vehicles with the start/stop system**

Connect the positive pole first and then the body ground using a charge cable. This ensures that the Battery Monitoring Control Module -J367- is not bridged. Charging the battery directly on the negative terminal bridges the Battery Monitoring Control Module -J367- and prevents the Battery Monitoring Control Module -J367- from recording the battery data during the charging process. The values stored in the Data Bus On Board Diagnostic Interface -J533- regarding the battery condition no longer match the values for the charged Battery -A-.

**Battery Monitoring Control Module -J367-. Refer to ⇒ [B5.4 at-](#)  
[tery Monitoring Control ModuleJ367 ", page 21](#) .**





### 1 - Battery -A-

- Removing and installing for vehicles with gasoline engine [⇒ 5.2, page 18](#)
- Removing and installing for vehicles with Diesel engines [⇒ 5.3, page 19](#)

### 2 - Positive Cable Battery Terminal

- Battery terminal threaded connection, refer to [⇒ P1.1.3 ost/Terminal", page 1](#)

### 3 - Nut

- 6 Nm

### 4 - Positive Cable

### 5 - Bolt

- 20 Nm

### 6 - Clamping Plate

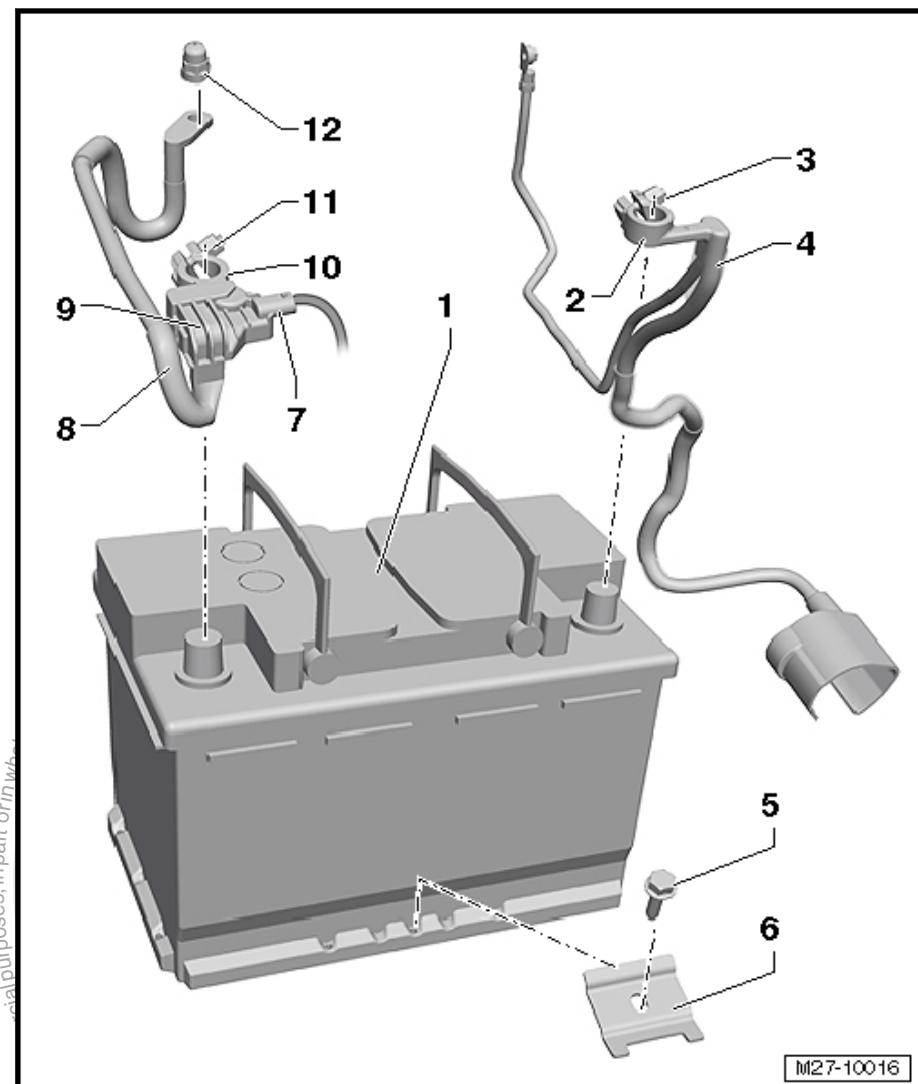
### 7 - Connector

- On the Battery Monitoring Control Module - J367-

### 8 - Ground Cable

### 9 - Battery Monitoring Control Module -J367-

- Replacing and Starting, refer to [⇒ , page 22](#)
- Removing and installing. Refer to [⇒ , page 23](#).



### 10 - Ground Cable Battery Terminal

- Battery terminal threaded connection, refer to [⇒ P1.1.3 ost/Terminal", page 1](#)

### 11 - Nut

- 6 Nm

### 12 - Nut

- 20 Nm

## 2.2 Starter -B- Overview

Automatic/DSG Transmission [⇒ S2.2.1 tarterB Overview", page 6](#)

Manual Transmission [⇒ S2.2.2 tarterB Overview", page 7](#)

### 2.2.1 Starter -B- Overview



**1 - Starter -B-**

- Checking. Refer to [C4.1 hecking", page 14](#).

**2 - Connection, B+ Wire to Starter -B-**

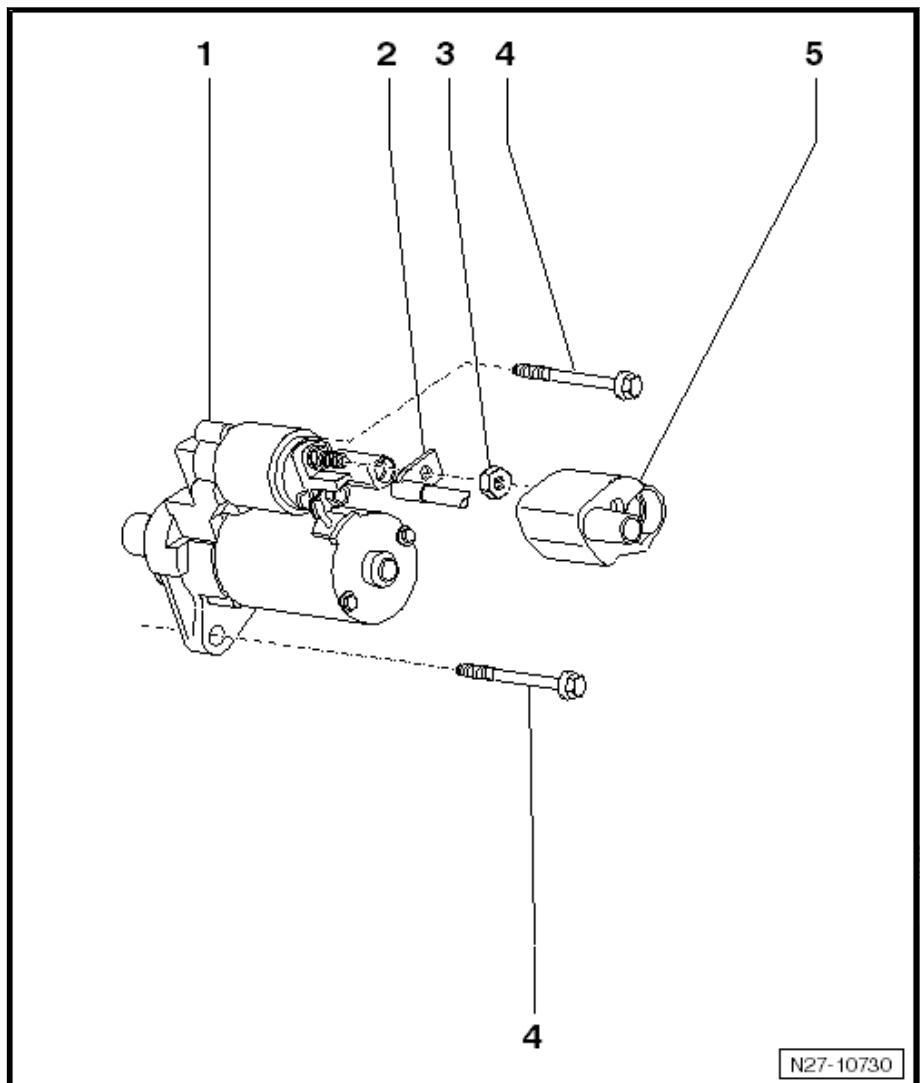
**3 - Nut**

- 20 Nm

**4 - Bolt**

- Quantity: 2
- 75 Nm

**5 - Cap**



**No illustration**

- ◆ Ground cable to automatic transmission housing: 15 Nm

## 2.2.2 Starter -B- Overview





**1 - Starter -B-**

- Checking. Refer to [C4.1 hecking", page 14.](#)

**2 - Connection, B+ Wire to Starter -B-**

**3 - Nut**

- 15 Nm

**4 - Bolt**

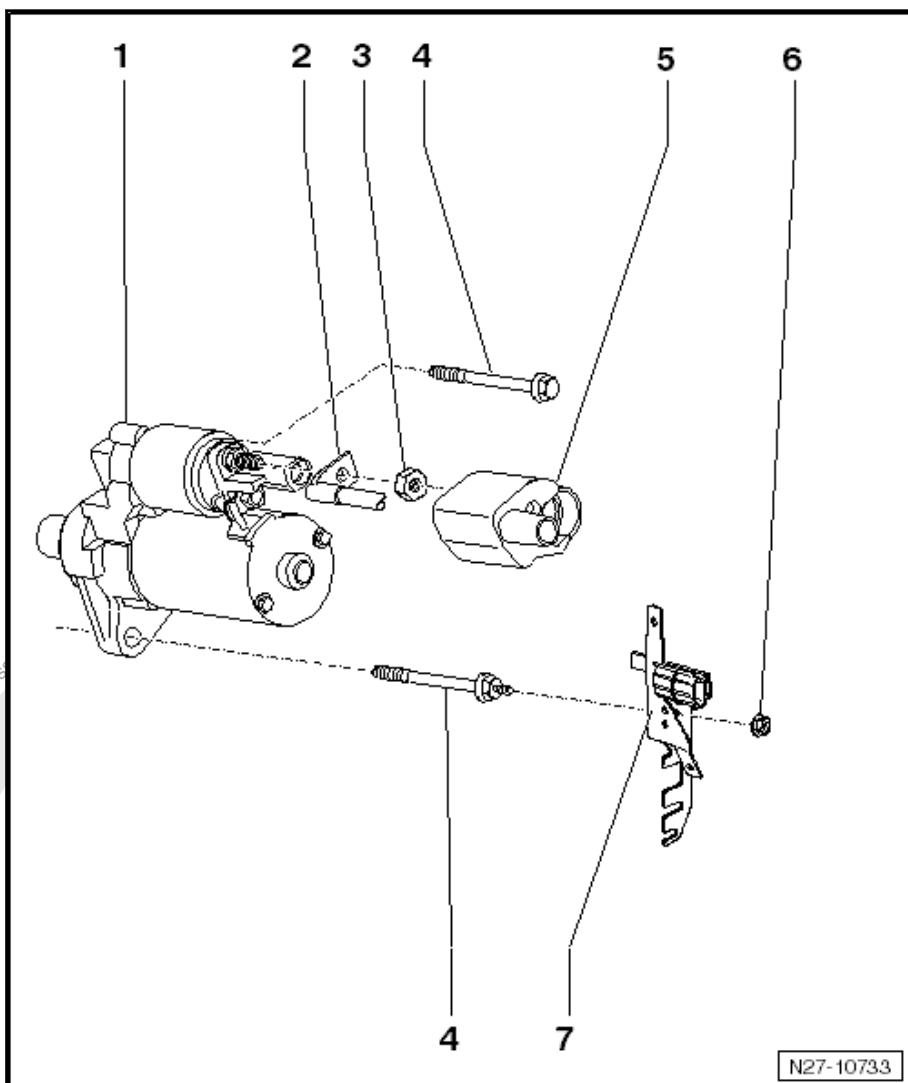
- Quantity: 2
- 75 Nm

**5 - Cap**

**6 - Nut**

- 23 Nm

**7 - Cable Holder**



## 2.3 Generator -C- Overview

2.0L Gasoline Engine ➤ [G2.3.1 generatorC Overview", page 8](#)

2.5L Gasoline Engine ➤ [G2.3.2 generatorC Overview", page 9](#)

2.0L Diesel Engine ➤ [G2.3.3 generatorC Overview", page 10](#)

### 2.3.1 Generator -C- Overview

Refer to the Parts Catalog for the correct bolts and nuts.



**1 - Bolt**

- 20 Nm

**2 - Bolts**

- 2 Nm

**3 - Washer**

**4 - Bolt**

- 4.5 Nm

**5 - Nut**

- Cable Holder Nut
- 3.2 Nm

**6 - Nut**

- Nut for the B+ wire
- 20 Nm

**7 - Cap**

**8 - Bolt**

- 2 Nm

**9 - Voltage Regulator -C1-**

- Removing and installing. Refer to [R5.11 regulator](#), page 57 .

**10 - Generator -C-**

- Removing and installing. Refer to [G5.9.1 generatorC](#), page 43 .
- Checking. Refer to [C4.3 hecking](#), page 14 .
- B+ wire mount, refer to [W5.8 ire Connection to GeneratorC](#), page 42
- Removing and installing the ribbed belt pulley [B5.10 elt Pulley](#), page 52

**11 - Ribbed Belt**

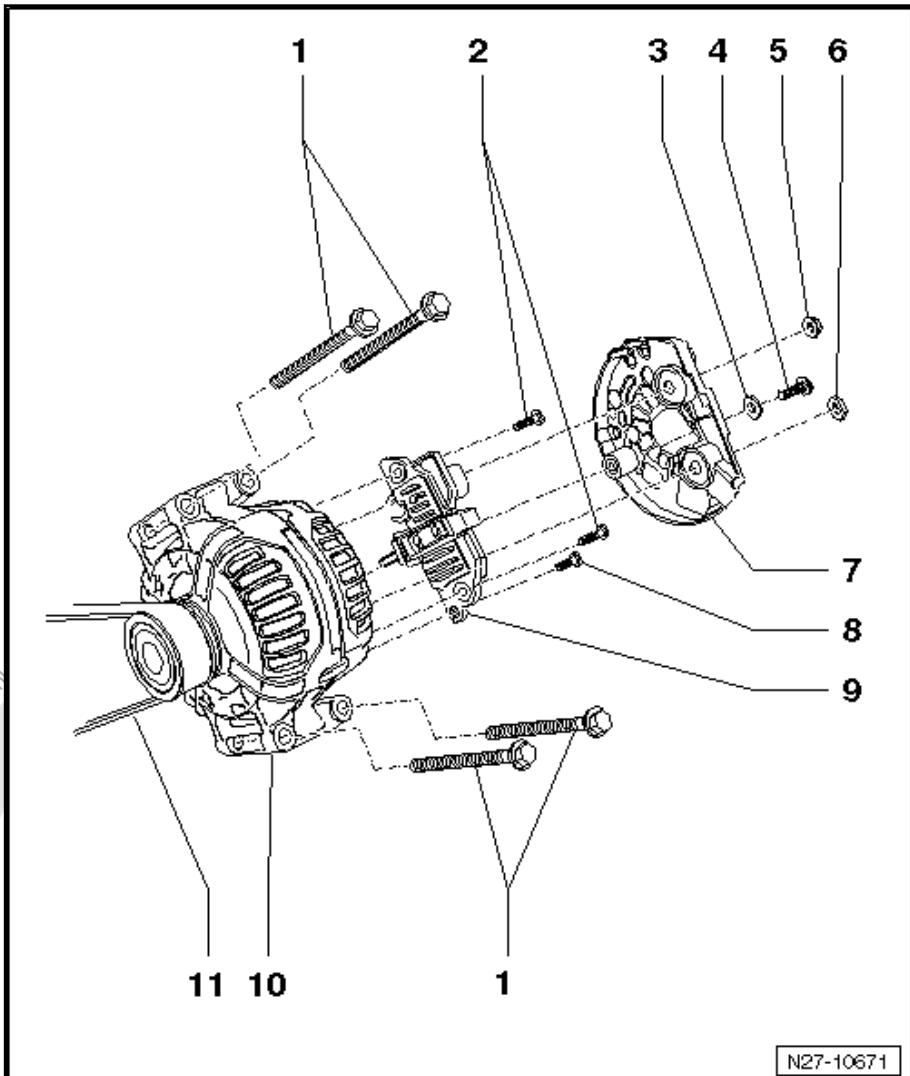
- Checking. Refer to [B4.2 elt, Checking](#), page 14 .
- Removing and installing. Refer to [Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 13; Removal and Installation](#).
- Routing. Refer to [Engine Mechanical, Fuel Injection and Ignition; Rep. Gr.13; Removal and Installation](#).

**No illustration**

- ◆ Ribbed belt pulley without freewheel: 65 Nm.
- ◆ Ribbed belt pulley with freewheel: 80 Nm.

### 2.3.2 Generator -C- Overview

Refer to the Parts Catalog for the correct bolts and nuts.



N27-10671



**1 - Bolt**

- 25 Nm

**2 - Ribbed Belt**

- Checking. Refer to [B4.2 elt, Checking](#), page 14 .
- Removal and Installation. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 13; Removal and Installation.
- Routing. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 13; Removal and Installation.

**3 - Ribbed Belt Pulley**

- without free wheel: 65 Nm
- with free wheel: 80 Nm
- Removing and installing. Refer to [B5.10 elt Pulley](#), page 52 .

**4 - Generator -C-**

- Removing and installing. Refer to [G5.9.2 generatorC](#), page 46 .
- Checking. Refer to [C4.3 hecking](#), page 14 .
- B+ wire mount, refer to ⇒ [W5.8 ire Connection to GeneratorC](#), page 42 .

**5 - Voltage Regulator -C1-**

- Removing and installing. Refer to ⇒ [R5.11 egulator](#), page 57 .

**6 - Bolt with Washer and Threaded Piece**

- 4 Nm

**7 - Cap**

**8 - Bolt**

- 2 Nm

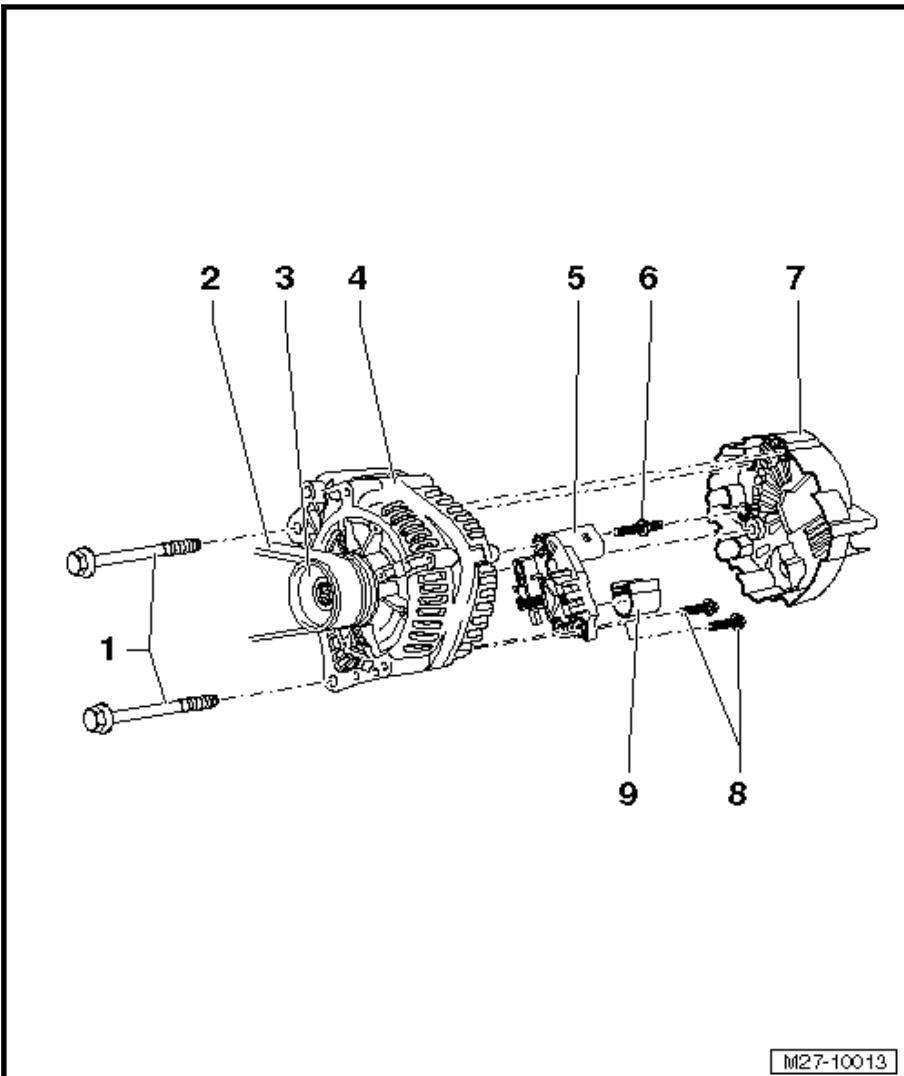
**9 - Cap for the Carbon Brushes**

**No illustration**

- ◆ B+ wire nut on the back of the generator: 20 Nm
- ◆ Wire holder nut on the back of the generator: 3.2 Nm

### 2.3.3 Generator -C- Overview

Refer to the Parts Catalog for the correct bolts and nuts.





### 1 - Bolt

- 20 Nm

### 2 - Ribbed Belt

- Checking. Refer to [B4.2 elt, Checking](#), page 14 .
- Removal and Installation. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 13; Removal and Installation.
- For the correct routing. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 13; Removal and Installation.

### 3 - Ribbed Belt Pulley

- without free wheel: 65 Nm
- with free wheel: 80 Nm
- Removing and installing. Refer to [B5.10 elt Pulley](#), page 52 .

### 4 - Generator-C-

- Removing and installing. Refer to [G5.9.3 enatorC](#), page 49 .
- Checking. Refer to [C4.3 hecking](#), page 14 .
- B+ wire mount, refer to ⇒ [W5.8 ire Connection to GeneratorC](#), page 42

### 5 - Voltage Regulator -C1-

- Removing and installing. Refer to [V5.11.1 oltage RegulatorC1 \(Bosch\)](#), page 57 .

### 6 - Bolt with Washer and Threaded Piece

- 4 Nm

### 7 - Cap

### 8 - Bolts

- 2 Nm

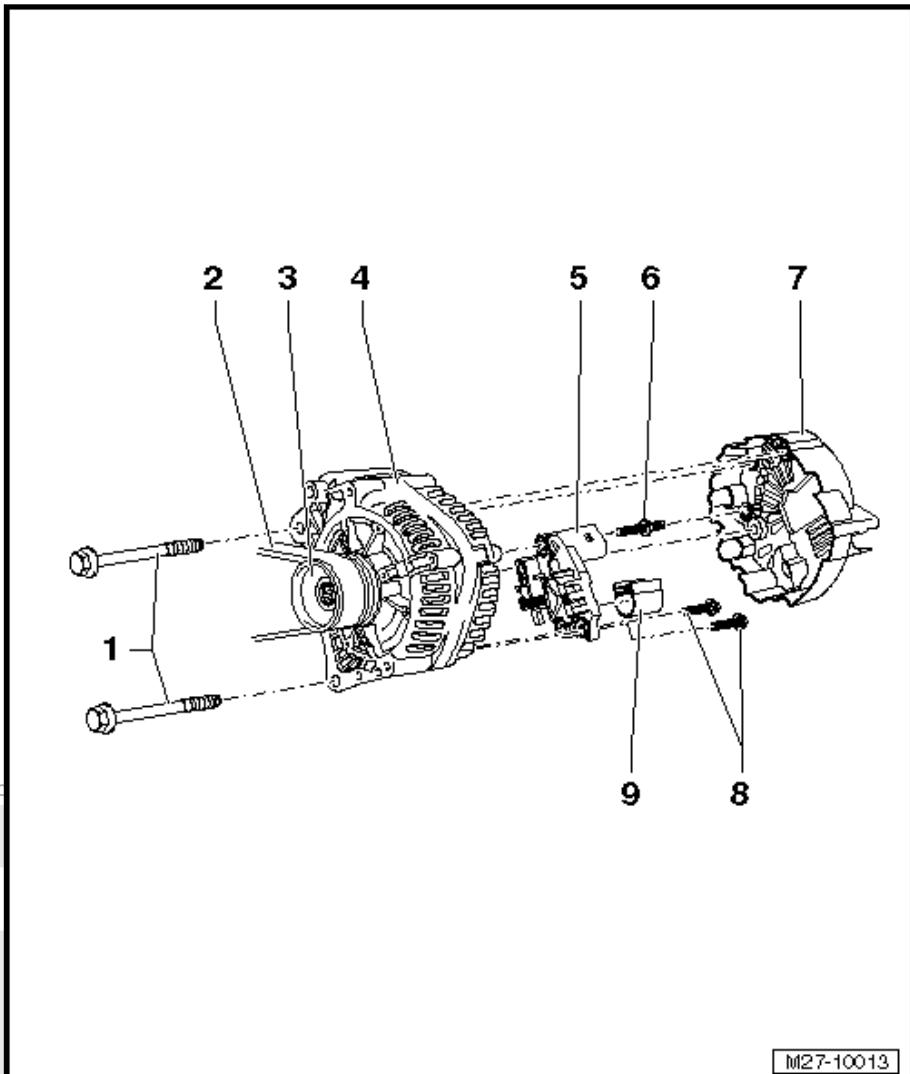
### 9 - Cap for the Carbon Brushes

#### No illustration

- ◆ B+ wire nut on the back of the generator: 20 Nm
- ◆ Wire holder nut on the back of the generator: 3.2 Nm

## 2.4 Start/Stop Mode Button -E693-

The Start/Stop mode button -E693- is located with the switches inside the center console in front of the gearshift lever. The switch manually switches the Start/Stop System on and off.



M27-10013



- ◆ Start/Stop Mode Button -E693-, Removal and Installation,  
refer to [⇒ i4.7.1 n Center Console Storage Compartment](#),  
[page 393](#) .





### 3 Specifications

⇒ T3.1 Tightening Specifications", page 13

#### 3.1 Fastener Tightening Specifications

Component	Fastener Size	Nm
Sub-Assembly Bracket, Bolts <sup>1</sup>	-	52
Sub-Assembly Bracket, Bolts <sup>2</sup>	-	25
Sub-Assembly Bracket, Bolts <sup>3</sup>	-	45
Air Filter Housing To Body Screw	-	10
Battery Hold Down Screw	-	20
Battery Terminal Clamp Nut	-	6
Battery Tray Bolts	-	9
B+ Wire to Starter	-	20
B+ Wire Nut To Generator	-	20
Generator Cap, Phillips Head Screw	-	4.5
Generator Cap, Nut	-	15
Generator Cap, Nut	-	20
Generator, Bolts <sup>1</sup>	-	23
Generator, Bolts <sup>2</sup>	-	25
Generator, Bolts <sup>4, 3</sup>		20
Hex Bolt With Washer and Threaded Piece for Voltage Regulator	-	2
Ribbed Belt Pulley Without Freewheel	-	65
Ribbed Belt Pulley With Freewheel	-	80
Ribbed Belt Tensioner, Bolts <sup>1, 3</sup>	-	23
Starter Mounting Bolt	M10	40
	M12	75
Voltage Regulator	-	2
Voltage Stabilizer Nut	-	1.5
Wire Clamp Nut To The Back Of The Generator	-	3.2
Wiring Bracket Nut at Starter, Manual Transmission	-	20

- <sup>1</sup> Applies to 2.0L FSI
- <sup>2</sup> Applies to 2.5L
- <sup>3</sup> Applies to 2.0L TFSI
- <sup>4</sup> Applies to 2.0L TDI



## 4 Diagnosis and Testing

⇒ C4.1 hecking", page 14

⇒ B4.2 elt, Checking", page 14

⇒ C4.3 hecking", page 14

### 4.1 Starter, Checking

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 27 - voltage supply starter
  - ◆ Electrical Components
  - ◆ Starter -B-

### 4.2 Ribbed Belt, Checking



#### Caution

*Always replace the ribbed belt if it is faulty. This can help prevent failures and malfunctions.*

#### Procedure

- Turn the engine by the vibration damper/belt pulley using a wrench.
- Check the ribbed belt for:
  - ◆ Cracks in the underside (surface cracks, fragmenting, cross-section breaks)
  - ◆ Layer separation (outer layer, tension cords)
  - ◆ Wear-through on the underside
  - ◆ Fraying of tension cords
  - ◆ Edge wear (material wear, frayed edges, hardened edges -glazed edges-, surface cracks)
  - ◆ Oil and grease traces

### 4.3 Generator, Checking

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 27 - Starter, voltage supply



- ◆ Electrical Components
- ◆ C - generator





## 5 Removal and Installation

⇒ [D5.1 Disconnecting and Connecting", page 16](#)

Gasoline Engines ⇒ [5.2 , page 18](#)

TDI Engines ⇒ [5.3 , page 19](#)

⇒ [B5.4 Battery Monitoring Control Module J367 ", page 21](#)

Automatic Transmission ⇒ [S5.5 TarterB ", page 24](#)

DSG Transmission ⇒ [S5.6 TarterB ", page 32](#)

Manual Transmission ⇒ [S5.7 TarterB ", page 36](#)

⇒ [W5.8 ire Connection to GeneratorC ", page 42](#)

⇒ [G5.9 eneratorC ", page 43](#)

⇒ [B5.10 elt Pulley", page 52](#)

⇒ [R5.11 egulator", page 57](#)

Start/Stop Vehicles ⇒ [V5.12 oltage Stabilizer J532 ", page 59](#)

### 5.1 Battery, Disconnecting and Connecting

⇒ [D5.1.1 Disconnecting", page 16](#)

⇒ [C5.1.2 onnecting", page 17](#)

#### 5.1.1 Battery, Disconnecting



##### Caution

- ◆ Make sure the electrical system of the vehicle is always protected. Disconnect the battery -A- before working on the electrical system.
- ◆ Follow all warning messages and Safety Precautions. Refer to ⇒ [a1.1.2 nd Safety Precautions", page 1](#).

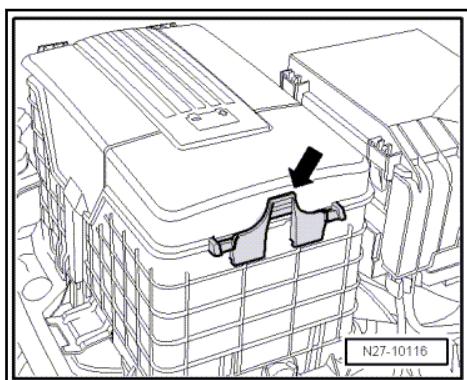


##### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

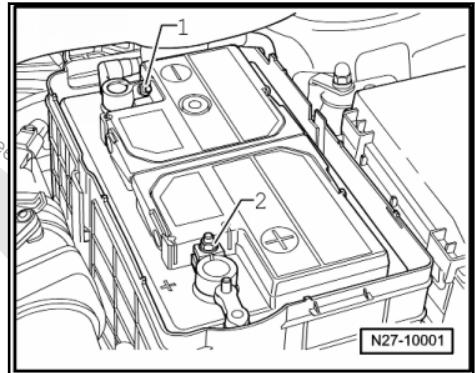
#### Procedure

- Open the locking mechanism -arrow- and remove the battery housing cover.





- Disconnect the ground cable -1- from the battery negative pole.



- Disconnect the positive cable -2- from the battery positive pole.

### 5.1.2 Battery, Connecting

#### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-



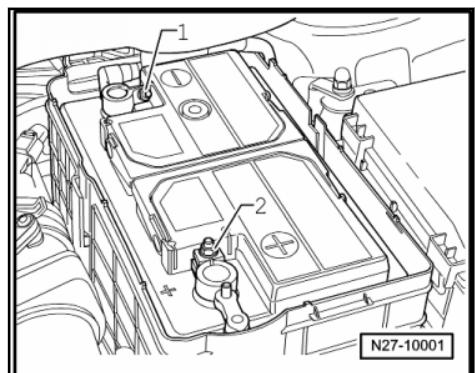
#### Caution

*Observe the information regarding the threaded connection of the battery terminals. Refer to [P1.1.3 Post/Terminal](#), page 1.*

After connecting the Battery -A- and switching the ignition on, the ASR/ESP Control Lamp -K155- lights up continuously. The ASR/ESP Control Lamp -K155- goes out automatically if a straight distance is driven at 15 to 20 km/h. This activates the Steering Angle Sensor -G85-.

#### Procedure

- Attach the positive cable -2- to the positive terminal on the Battery -A- and tighten the screw to the tightening specification. Refer to [O2.1 overview](#), page 5 .



- Attach the ground cable -1- to the negative terminal on the Battery -A- and tighten the screw to the tightening specification. Refer to [O2.1 overview](#), page 5 .
- Perform the work steps listed in the Table.



### Work steps required after reconnecting the Battery -A-

Work steps	Completed?
Switch the ignition on using the ignition key and switch it off again.	
Read the DTC memory, connect the Vehicle Diagnostic Tester.	
Clock: Check and reset to local time.	
Power windows: Completely open and close all power windows.	
Perform function test of all electrical consumers.	

The table can be printed out.

## 5.2 Battery

### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-

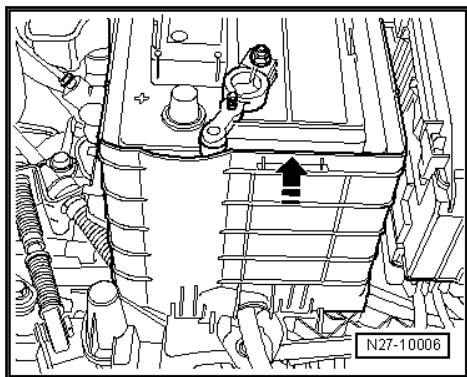


#### Caution

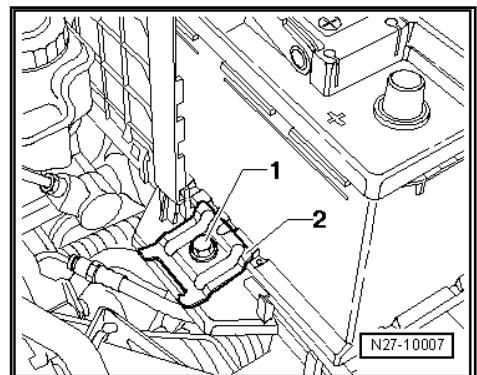
*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [D5.1 Disconnecting and Connecting](#), page 16.*

### Removing

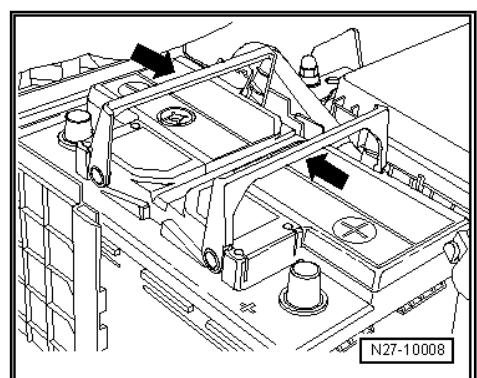
- Disconnecting the Battery -A-. Refer to [D5.1.1 Disconnecting](#), page 16 .
- Remove the battery case wall in the direction of the -arrow-.



- Remove the bolt -1- and then remove the clamping plate -2-.



- Fold up the handles -arrows- and remove the battery -A-.



## Installing



### Caution

*If the Battery -A- is not secured properly, the following risks are possible:*

- ◆ *Shortened battery service life due damage caused by vibration (explosion hazard).*
- ◆ *If the Battery -A- is not secured properly, the plates inside the Battery -A- can get damaged.*
- ◆ *Damage to battery casing caused by clamping plate (possible electrolyte leakage, high subsequent costs).*
- ◆ *Inadequate crash safety.*

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specifications. Refer to [O2.1 overview](#), page 5 .
- Make sure the Battery -A- is secure after installing it.
- Connecting the Battery -A-. Refer to [C5.1.2 onnecting](#), page 17 .

## 5.3 Battery

### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-

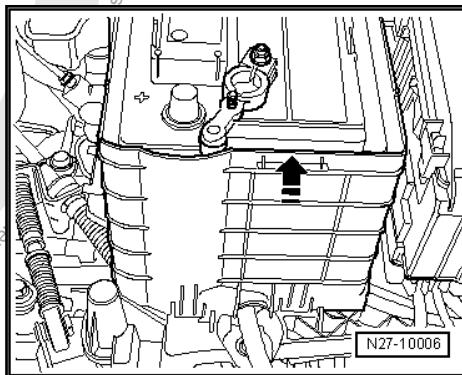


### Caution

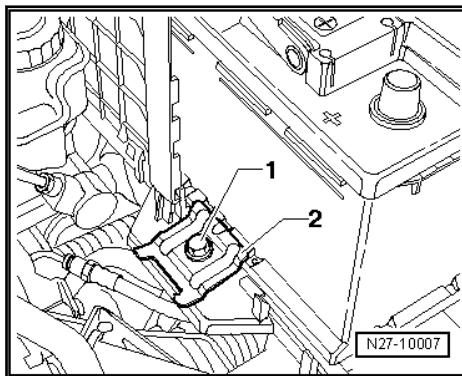
*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ D5.1 Disconnecting and Connecting", page 16.*

### Removing

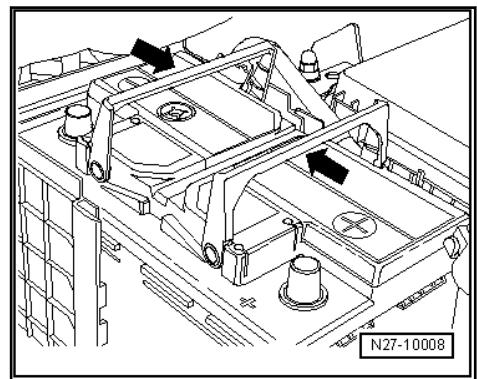
- Disconnecting the Battery -A-. Refer to ⇒ D5.1.1 Disconnecting", page 16 .
- Remove the engine cover. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 10; Removal and Installation.
- Remove the air filter housing with the Mass Airflow Sensor -G70- and connecting tube. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23; Description and Operation.
- Remove the battery case wall in the direction of the -arrow-.



- Remove the bolt -1- and then remove the clamping plate -2-.



- Fold up the handles -arrows- and remove the battery -A-.



## Installing



### Caution

*If the Battery -A- is not secured properly, the following risks are possible:*

- ◆ *Shortened battery service life due damage caused by vibration (explosion hazard).*
- ◆ *If the Battery -A- is not secured properly, the plates inside the Battery -A- can get damaged.*
- ◆ *Damage to battery casing caused by clamping plate (possible electrolyte leakage, high subsequent costs).*
- ◆ *Inadequate crash safety.*

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the previously noted tightening specifications. Refer to [⇒ O2.1 overview](#), page 5 .
- Make sure the Battery -A- is secure after installing it.
- Connecting the Battery -A-. Refer to [⇒ C5.1.2 connecting](#), page 17 .

## 5.4 Battery Monitoring Control Module -J367-

### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-

The Battery Monitoring Control Module -J367- is installed for vehicles with the start/stop system.

The Battery Monitoring Control Module -J367- will be recognized during the battery charging process. The battery data for the battery charge is then compared with the values in the Data Bus On Board Diagnostic Interface -J533-.



### Note

*Note the following when charging or using the battery jump start terminal on vehicles with the Start/Stop System: always first connect the charge cable to the positive terminal and then connect the ground cable.*

Further information can be found in the Start/Stop System chapter. Refer to [⇒ S1.4 system](#), page 2 .



## Starting

The procedure for “replacing the Battery Monitoring Control Module” includes the following steps:

- ◆ If a new Battery Monitoring Control Module -J367- is installed in the vehicle, then the Battery Monitoring Control Module -J367- must be coded.
- ◆ Then the Battery Monitoring Control Module -J367- must be adapted.



### Note

*The procedure to “replace the Battery Monitoring Control Module” can only be performed Vehicle Diagnostic Tester in the “guided fault finding” function.*

## Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 61 - Battery regulation
  - ◆ Battery regulation functions
  - ◆ Replace control module



### Note

*After the “replace the Battery Monitoring Control Module” procedure occurs, the “starting after replacing” procedure must be performed.*

## Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 61 - Battery regulation
  - ◆ Battery regulation functions
  - ◆ Starting after replacing

The “replacing the Battery Monitoring Control Module” procedure must be performed each time before removing the Battery Monitoring Control Module -J367- to read the data stored in the Battery Monitoring Control Module -J367-. Refer to [⇒ page 22](#).



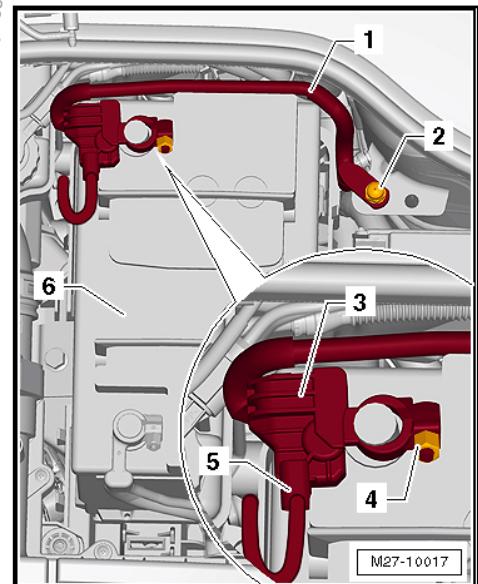
### Caution

**Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [D5.1 Disconnecting and Connecting](#), page 16.**

## Removal and Installation

### Removing

- Disconnecting the Battery -A-. Refer to [D5.1.1 Disconnecting](#), page 16 .
- Loosen the nut -4- a few turns and remove the battery ground cable terminal and the Battery Monitoring Control Module -J367- -3- from the battery negative pole.



- Disengage the connector -5- and disconnect.
- Free up the ground wire -1-.
- Remove the nut -2- and then remove the ground wire and the Battery Monitoring Control Module -J367- -1-.

### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the previously noted tightening specifications. Refer to [O2.1 Overview](#), page 5 .
- Connecting the Battery -A-. Refer to [C5.1.2 Connecting](#), page 17 .

The “replacing after starting operations” procedure must be performed after installing the Battery Monitoring Control Module -J367-, refer to [page 22](#) .



## 5.5 Starter -B-

2.0L Gasoline ➤ [S5.5.1 tarterB ", page 24](#)

2.5L Gasoline ➤ [S5.5.2 tarterB ", page 26](#)

2.0L Diesel ➤ [S5.5.3 tarterB ", page 29](#)

### 5.5.1 Starter -B-

#### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-
- ◆ Torque Wrench 40-200 Nm -V.A.G 1332-

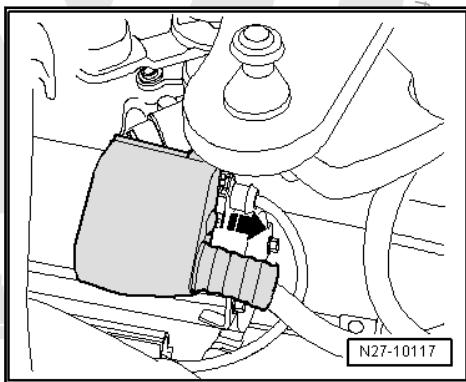


#### Caution

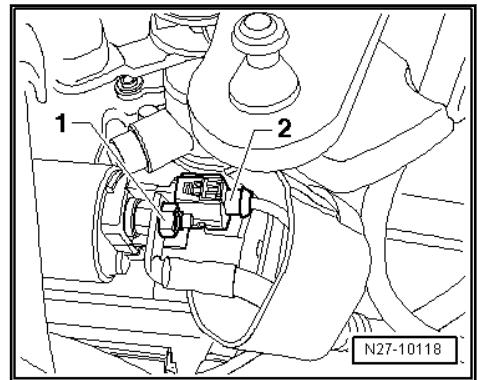
*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ➤ [D5.1 Isconnecting and Connecting", page 16](#).*

#### Removing

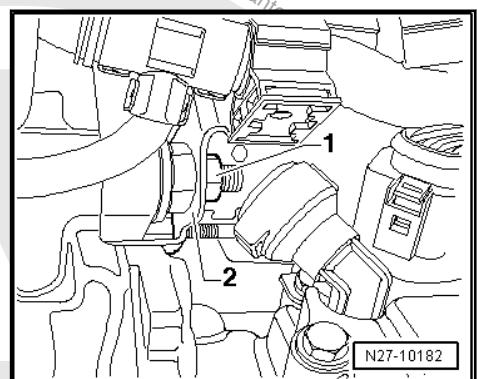
- Disconnecting the Battery -A-. Refer to ➤ [D5.1.1 Isconnecting", page 16](#).
- Remove the engine cover. Refer to ➤ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 10; Removal and Installation.
- Remove the air filter housing. Refer to ➤ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 24; Description and Operation.



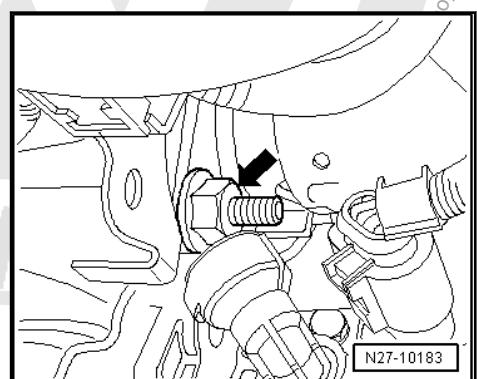
- Slide the cap off the solenoid switch in the direction of the -arrow-.
- Remove the positive cable -1- and disconnect the connector from terminal 50 -2-.



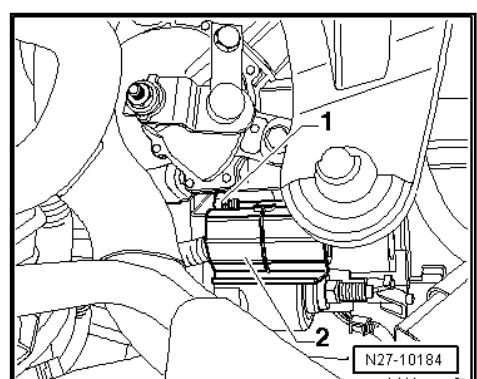
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50; Description and Operation.
- Remove the nut -1- from the bolt at the bottom of the starter.



- Remove the wire holder -2-.
- Remove the bolt at the bottom of the starter -arrow-.

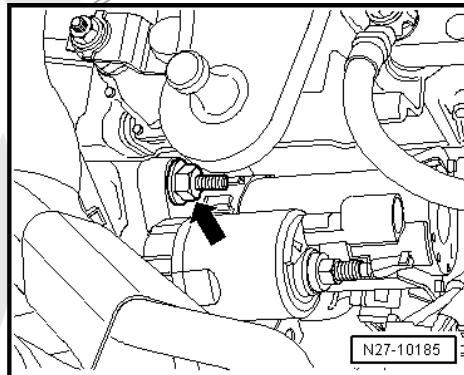


- Remove the nut -1- from the bolt at the top of the starter.

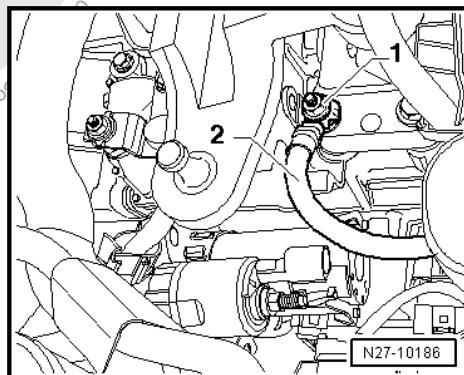




- Remove the wire holder -2-.
- Remove the bolt at the top of the starter -arrow-.



- Remove the nut from the ground cable -1- and then move the cable -2- to the side.



- Remove the Starter -B-.

### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the previously noted tightening specifications. Refer to [⇒ S2.2 tarterB Overview](#), [page 6](#).
- Connecting the Battery -A-. Refer to [⇒ C5.1.2 onnecting](#), [page 17](#).

### 5.5.2 Starter -B-

#### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-
- ◆ Torque Wrench 40-200 Nm -V.A.G 1332-



Caution

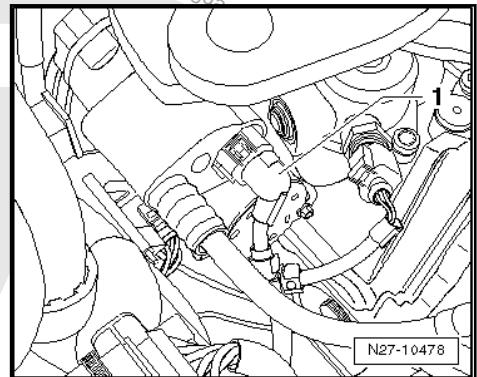
*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [⇒ page 16](#).*

### Removing

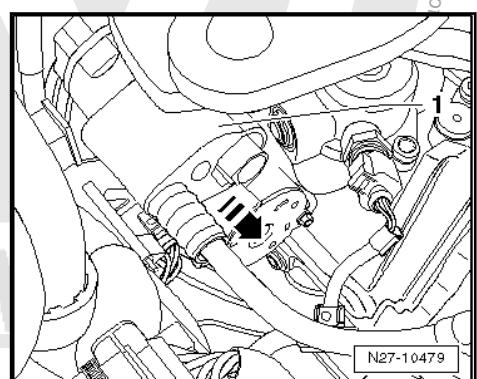
- Disconnecting the Battery -A-. Refer to [⇒ D5.1.1 isconnecting](#), [page 16](#).



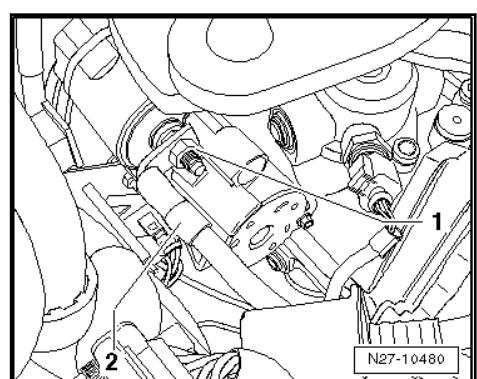
- Remove the engine cover. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 10; Removal and Installation.
- Remove the air filter housing. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 24; Description and Operation.
- Release and disconnect the connector (terminal 50).



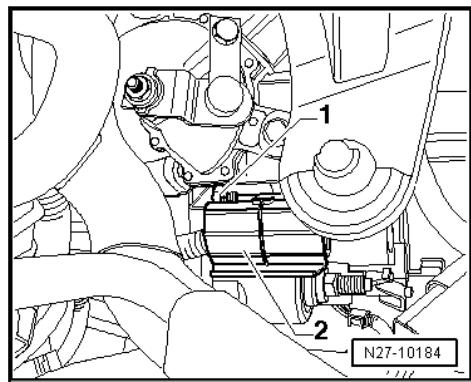
- Remove the cap -1- from the solenoid switch in the direction of the -arrow-.



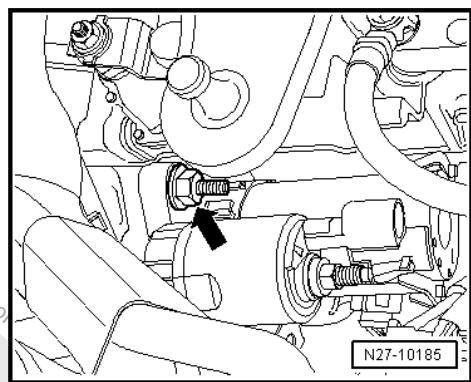
- Remove the nut -1- and disconnect the positive cable -2- from the solenoid switch.



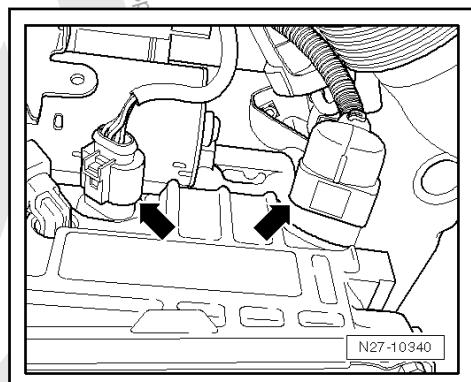
- Remove the nut -1- from the bolt at the top of the starter.



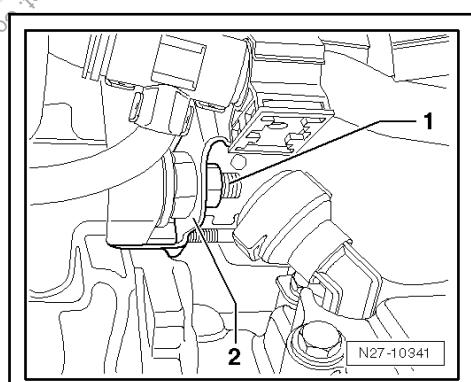
- Remove the wire holder -2-.
- Remove the bolt at the top of the starter -arrow-.



- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50; Description and Operation.
- Disconnect the connectors -arrows-.

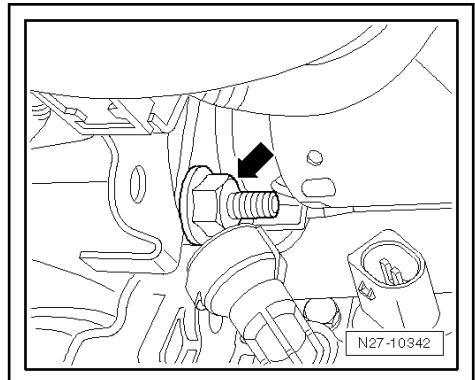


- Remove the nut -1- from the bolt at the bottom of the starter.





- Remove the wire holder -2-.
- Remove the bolt at the bottom of the starter -arrow-.



- Remove the starter -B- from the vehicle.

#### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the previously noted tightening specifications. Refer to [⇒ S2.2 Starter B Overview](#), [page 6](#).
- Connecting the Battery -A-. Refer to [⇒ C5.1.2 Connecting](#), [page 17](#).

### 5.5.3 Starter -B-

#### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-
- ◆ Torque Wrench 40-200 Nm -V.A.G 1332-



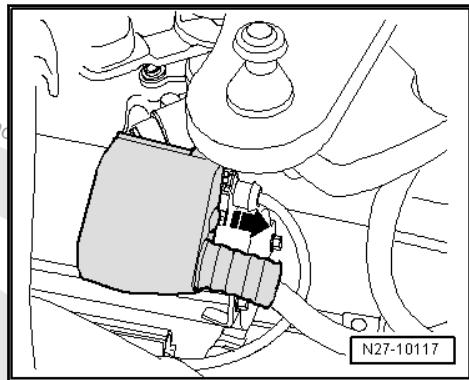
#### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [⇒ page 16](#).*

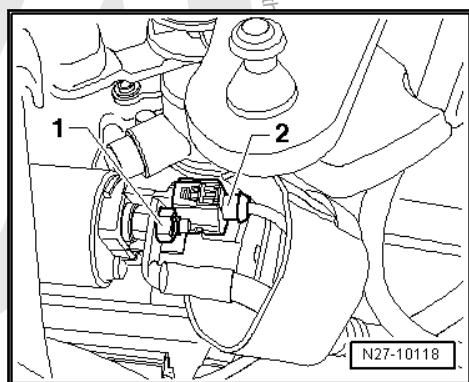
#### Removing

- Disconnecting the Battery -A-. Refer to [⇒ D5.1.1 Disconnecting](#), [page 16](#).
- Remove the engine cover. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 10; Removal and Installation.
- Remove the air filter housing. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23; Description and Operation.
- Slide the cap off the solenoid switch in the direction of the -arrow-.

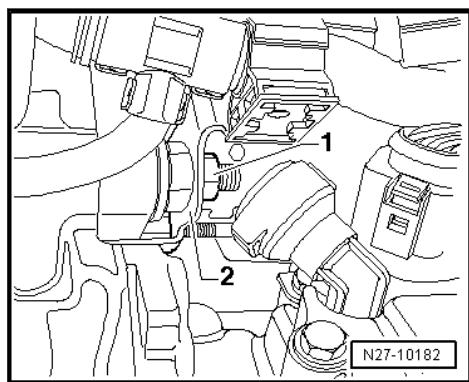




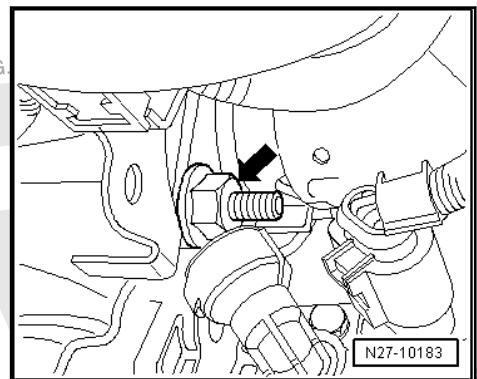
- Remove the positive cable -1- and disconnect the connector from terminal 50 -2-.



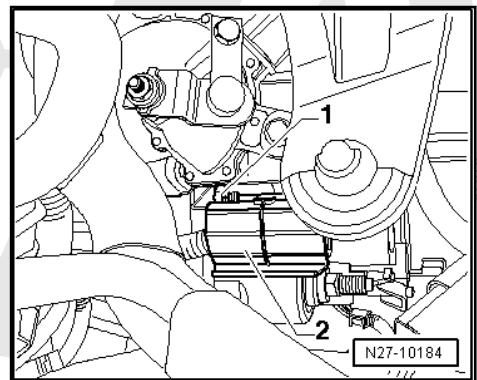
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50; Description and Operation.
- Remove the nut -1- from the bolt at the bottom of the starter.



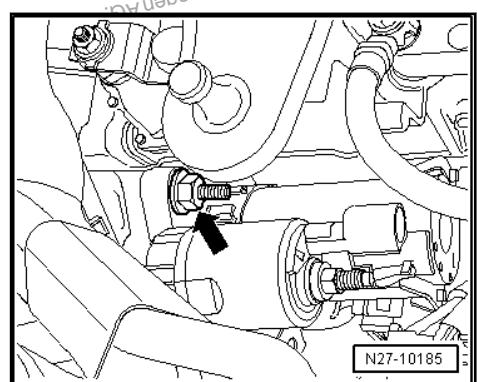
- Remove the wire holder -2-.
- Remove the bolt at the bottom of the starter -arrow-.



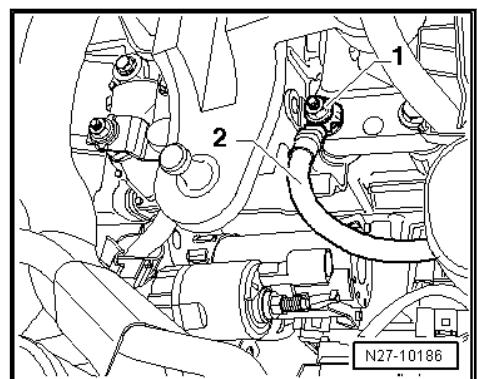
- Remove the nut -1- from the bolt at the top of the starter.



- Remove the wire holder -2-.
- Remove the bolt at the top of the starter -arrow-.



- Remove the nut -1- and then move the ground cable -2- toward the Battery -A-.



- Remove the Starter -B-.



## Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the previously noted tightening specifications. Refer to [⇒ S2.2 StarterB Overview](#), [page 6](#).
- Connecting the Battery -A-. Refer to [⇒ C5.1.2 Connecting](#), [page 17](#).

## 5.6 Starter -B-

2.0L Gasoline Engine [⇒ S5.6.1 StarterB](#), [page 32](#)

2.0L Diesel Engine [⇒ S5.6.2 StarterB](#), [page 33](#)

### 5.6.1 Starter -B-

**Special tools and workshop equipment required**

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-
- ◆ Torque Wrench 40-200 Nm -V.A.G 1332-

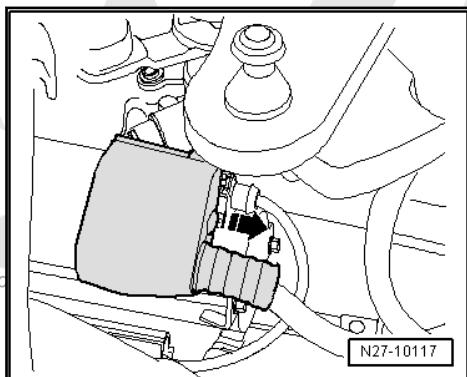


#### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [⇒ D5.1 Disconnecting and Connecting](#), [page 16](#).*

## Removing

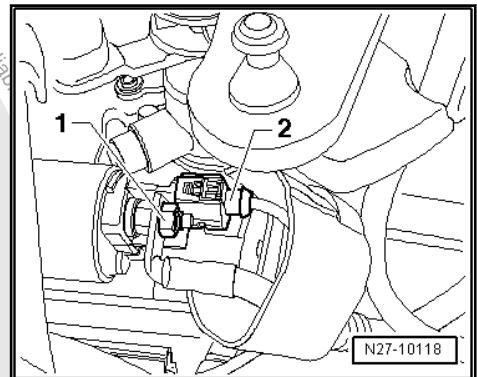
- Disconnecting the Battery -A-. Refer to [⇒ D5.1.1 Disconnecting](#), [page 16](#).
- Remove the engine cover. Refer to [⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 10; Removal and Installation](#).
- Remove the air filter housing. Refer to [⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23; Description and Operation](#).
- Slide the cap off the solenoid switch in the direction of the -arrow-.



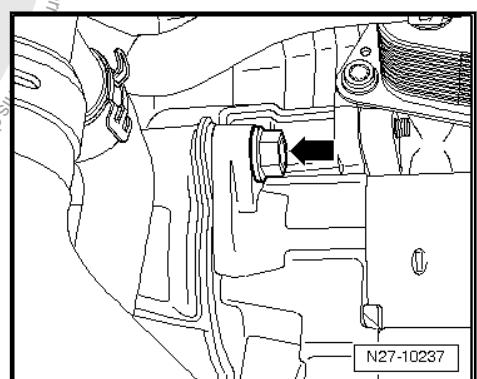
- Remove the positive cable -1- and disconnect the connector from terminal 50 -2-.



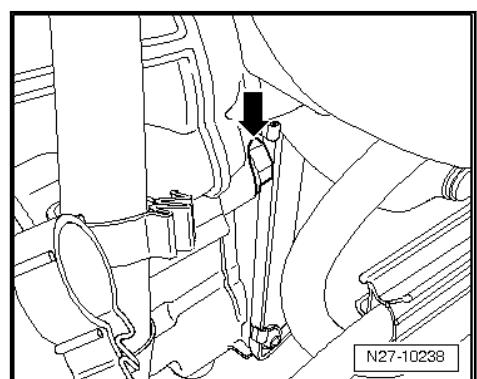
Remove the bolt at the top of the starter -arrow-.



- Remove the bolt at the bottom of the starter -arrow-.



- Remove the Starter -B-.



### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the previously noted tightening specifications. Refer to [S2.2.1 tarterB Over-view](#), page 6 .
- Connecting the Battery -A-. Refer to [C5.1.2 onnecting](#), page 17 .

## 5.6.2 Starter -B-

### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-
- ◆ Torque Wrench 40-200 Nm -V.A.G 1332-

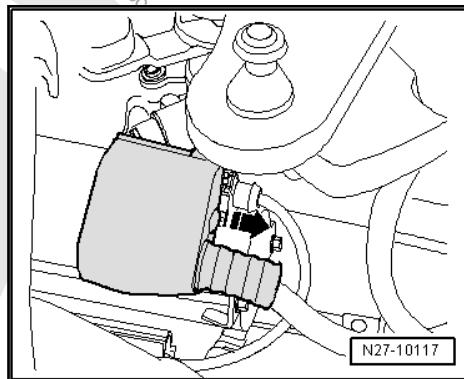


**Caution**

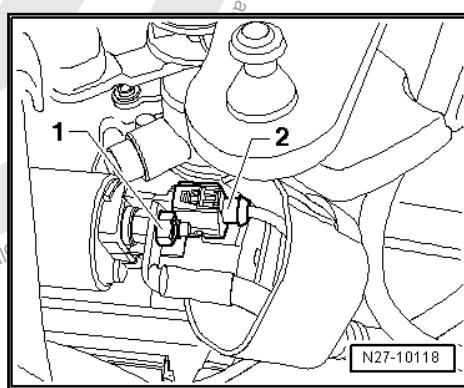
*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ D5.1 Disconnecting and Connecting", page 16 .*

**Removing**

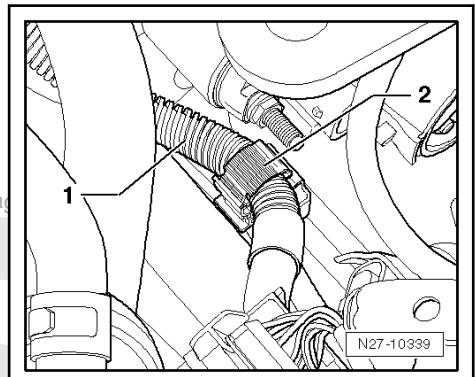
- Disconnecting the Battery -A-. Refer to ⇒ [D5.1.1 Disconnecting", page 16](#).
- Remove the engine cover. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 10; Removal and Installation.
- Remove the air filter housing. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23; Description and Operation.
- Slide the cap off the solenoid switch in the direction of the -arrow-.



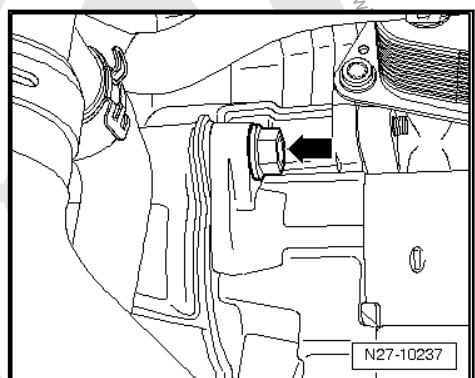
- Remove the positive cable -1- and disconnect the connector from terminal 50 -2-.



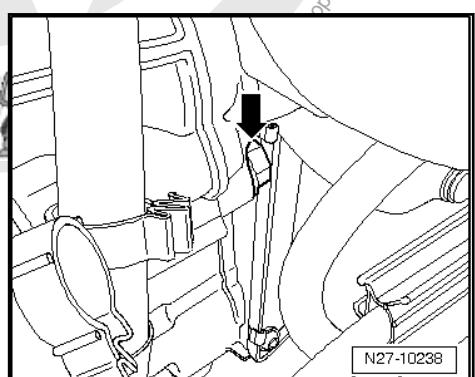
- Unclip the wire -1- from the wire holder -2-.



- Remove the bolt at the top of the starter -arrow-.



- Remove the bolt at the bottom of the starter -arrow-.



- Remove the Starter -B-.

### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the previously noted tightening specifications. Refer to [⇒ S2.2.1 tarterB Over-view”, page 6](#).
- Connecting the Battery -A-. Refer to [⇒ C5.1.2 onnecting”, page 17](#).



## 5.7 Starter -B-

2.0L Gasoline Engine ⇒ [S5.7.1 tarterB ", page 36](#)

2.5L Gasoline Engine ⇒ [S5.7.2 tarterB ", page 38](#)

2.0L Diesel Engine ⇒ [S5.7.3 tarterB ", page 40](#)

### 5.7.1 Starter -B-

#### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-
- ◆ Torque Wrench 40-200 Nm -V.A.G 1332-

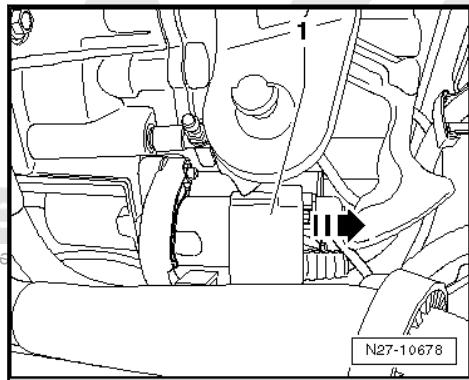


#### Caution

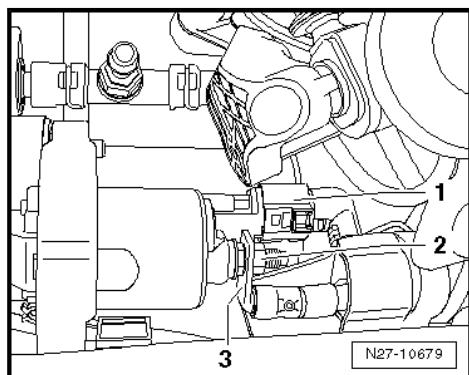
*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ [D5.1 Disconnecting and Connecting", page 16](#).*

#### Removing

- Disconnecting the Battery -A-. Refer to ⇒ [D5.1.1 Disconnecting", page 16](#).
- Remove the engine cover. Refer to ⇒ [Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 10: Removal and Installation](#).
- Remove the air filter housing. Refer to ⇒ [Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23: Description and Operation](#).
- Remove the cap -1- from the solenoid switch in the direction of the -arrow-.

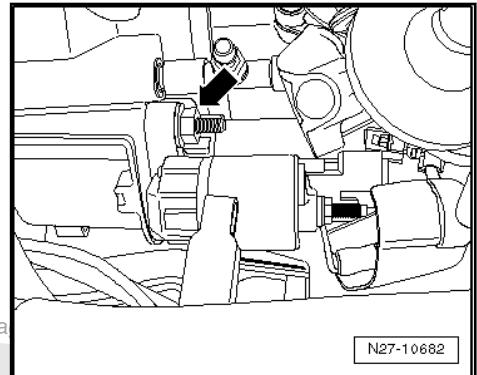


- Release and disconnect the connector (terminal 50) -1-.

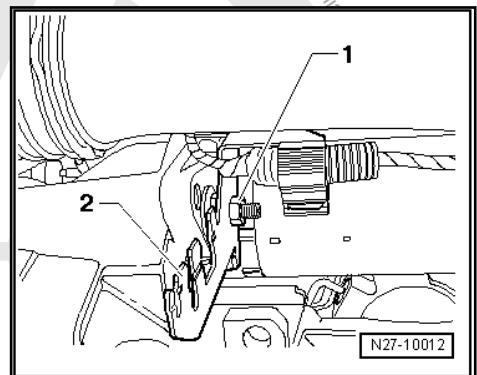




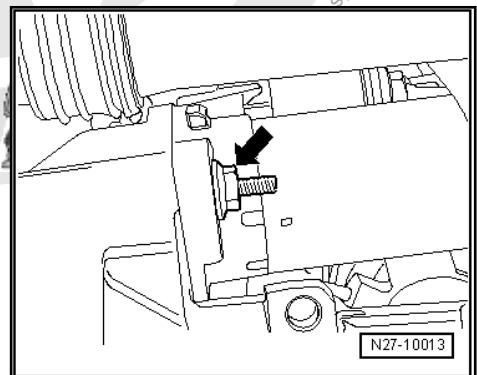
- Remove the nut -2- and disconnect the positive cable -3- from the solenoid switch.
- Remove the bolt at the top of the starter -arrow-.



- Remove the noise insulation. Refer to [Body Exterior; Rep. Gr. 50; Description and Operation](#).
- Remove the nut -1- from the bolt at the bottom of the starter.



- Remove the wire holder -2-
- Remove the bolt at the bottom of the starter -arrow-.



- Remove the Starter -B- downward.

### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the previously noted tightening specifications. Refer to [S2.2.2 tarterB Over-view](#), page 7 .
- Connecting the Battery -A-. Refer to [C5.1.2 onnecting](#), page 17 .



## 5.7.2 Starter -B-

### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-
- ◆ Torque Wrench 40-200 Nm -V.A.G 1332-

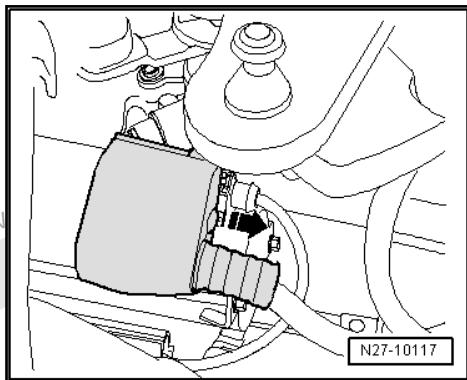


#### Caution

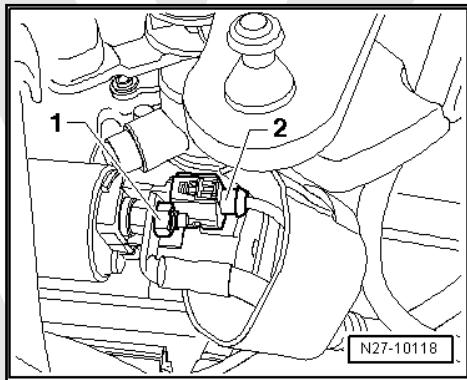
*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ page 16 .*

### Removing

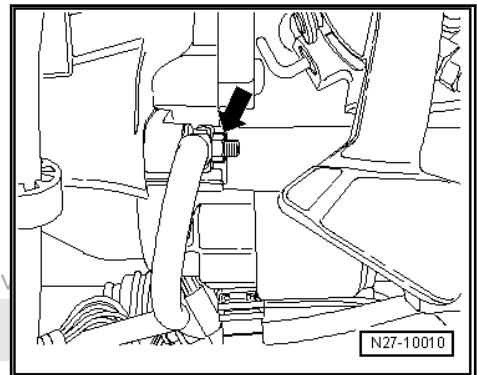
- Disconnecting the Battery -A-. Refer to ⇒ D5.1.1 disconnecting, page 16 .
- Remove the engine cover. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 10; Removal and Installation.
- Remove the air filter housing. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23; Description and Operation.
- Slide the cap off the solenoid switch in the direction of the -arrow-.



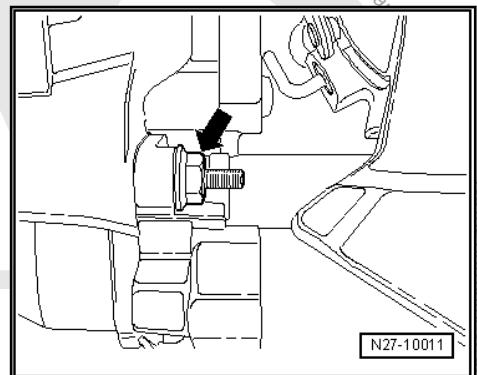
- Remove the positive cable -1- and disconnect the connector from terminal 50 -2-.



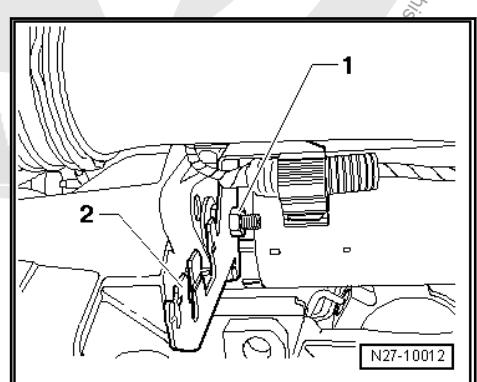
- Remove the ground wire from the starter bolt -arrow-.



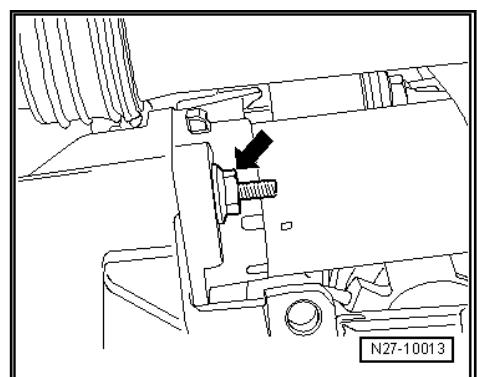
- Remove the bolt at the top of the starter **arrow-**.



- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50; Description and Operation.
- Remove the nut **-1-** from the bolt at the bottom of the starter.



- Remove the wire holder **-2-**.
- Remove the bolt at the bottom of the starter **arrow-**.





- Remove the Starter -B-.

### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the previously noted tightening specifications. Refer to [⇒ S2.2.2 StarterB Overview](#), page 7 .
- Connecting the Battery -A-. Refer to [⇒ C5.1.2 Connecting](#), page 17 .

## 5.7.3 Starter -B-

### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-
- ◆ Torque Wrench 40-200 Nm -V.A.G 1332-

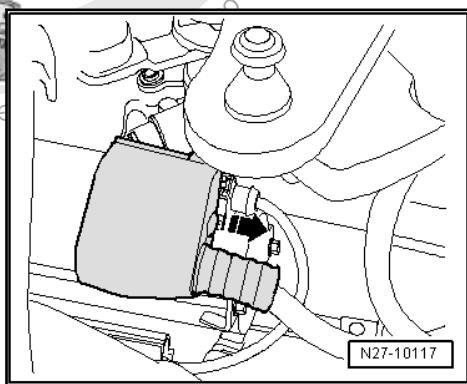


#### Caution

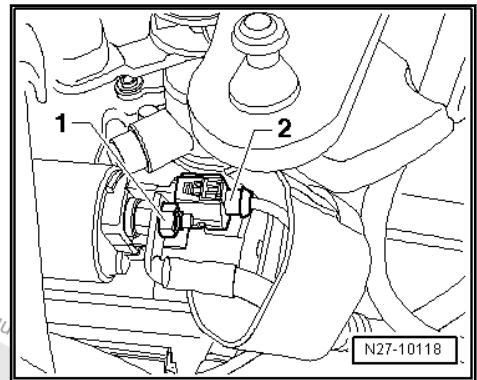
*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [⇒ D5.1 Disconnecting and Connecting](#), page 16 .*

### Removing

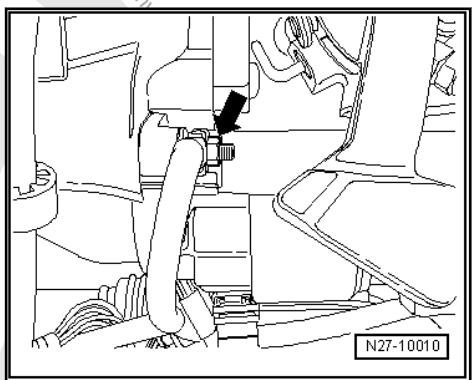
- Disconnecting the Battery -A-. Refer to [⇒ D5.1.1 Disconnecting](#), page 16 .
- Remove the engine cover. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 10; Removal and Installation.
- Remove the air filter housing. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23; Description and Operation.
- Slide the cap off the solenoid switch in the direction of the -arrow-.



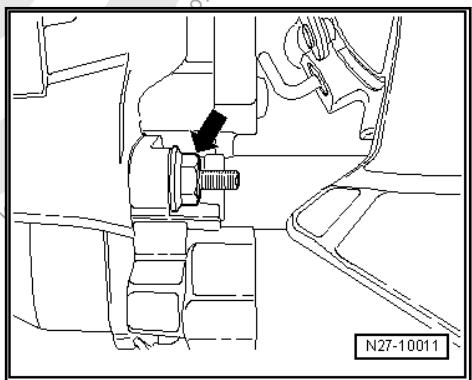
- Remove the positive cable -1- and disconnect the connector from terminal 50 -2-.



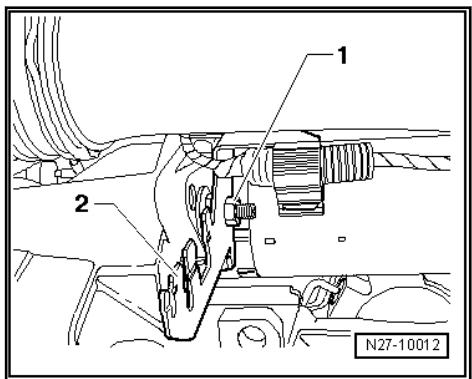
- Remove the ground wire from the starter bolt -arrow-.



- Remove the bolt at the top of the starter -arrow-.



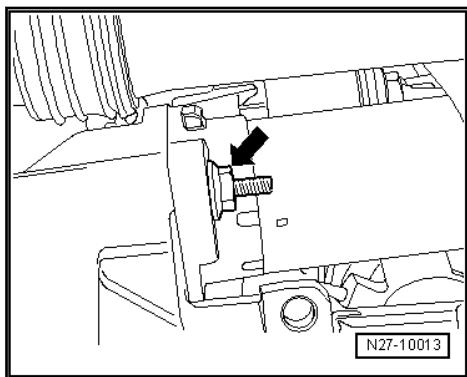
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50; Description and Operation.
- Remove the nut -1- from the bolt at the bottom of the starter.



- Remove the wire holder -2-.



- Remove the bolt at the bottom of the starter -arrow-.



- Remove the Starter -B-.

### Installing

Install in reverse order of removal. Note the following:

Tighten the threaded connections to the previously noted tightening specifications. Refer to [S2.2.2 tarterB Over-view](#), page 7 .

Connecting the Battery -A-. Refer to [C5.1.2 onnecting](#), page 17 .

## 5.8 B+ Wire Connection to Generator -C-



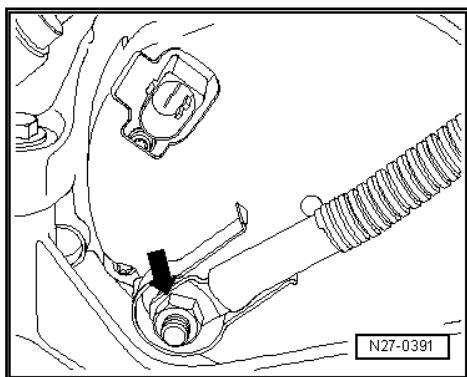
### Caution

If the B+ wire is not tightened to the specification, the following may occur:

- ◆ **Battery -A- will not be completely charged.**
- ◆ **The complete electrical/electronics systems may fail (disabled vehicle).**
- ◆ **Fire hazard due to arcing.**
- ◆ **Damage to electronic components and control modules caused by excessive voltage.**



B+ wire nut -arrow- tightening specification: 20 Nm.





## 5.9 Generator -C-

**2.0L Gasoline Engine ⇒ G5.9.1 GeneratorC ", page 43**

**2.5L Gasoline Engine ⇒ G5.9.2 GeneratorC ", page 46**

**2.0L Diesel Engine ⇒ G5.9.3 GeneratorC ", page 49**

### 5.9.1 Generator -C-

**Special tools and workshop equipment required**

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-
- ◆ Torque Wrench 40-200 Nm -V.A.G 1332-



#### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ D5.1 Disconnecting and Connecting", page 16 .*

#### Removing

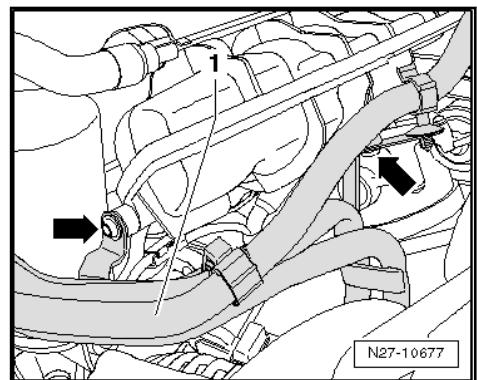
- Disconnecting the Battery -A-. Refer to ⇒ D5.1.1 Disconnecting", page 16 .
- Remove the engine cover. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 10; Removal and Installation.



#### Caution

*Mark the top of the ribbed belt and the running direction before removal. Make sure the belt is installed correctly and pay attention to the running direction. If the belt is installed in the opposite running direction or is positioned incorrectly, the belt will fail!*

- Remove the ribbed belt. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 13; Removal and Installation.
- Remove the bolts -arrows- and move the coolant pipes and hose -1- upward. This will make space for removing the generator -C-.



#### Note

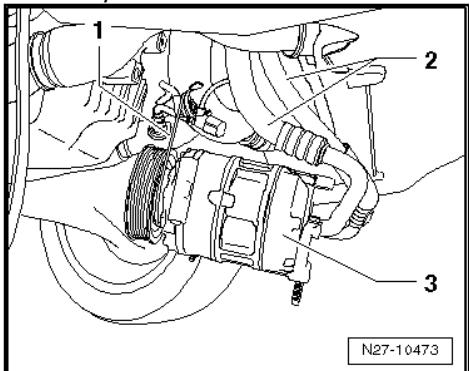
*The coolant pipes and the hose can remain connected.*



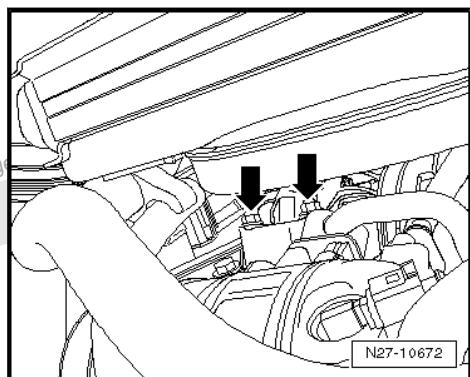
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50; Description and Operation.
- Remove the A/C compressor. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 87; Removal and Installation.

Note

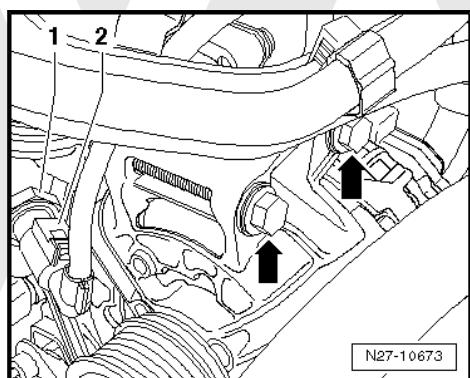
The hoses on the A/C compressor can remain connected.



- ◆ Tie the A/C compressor -3- to a suitable place under the vehicle using a binding wire -1- until it is ready to be reinstated.
- ◆ Make sure the hoses -2- are not pulled off or kinked.
- Remove the bottom bolts -arrows- from the Generator -C- from underneath.



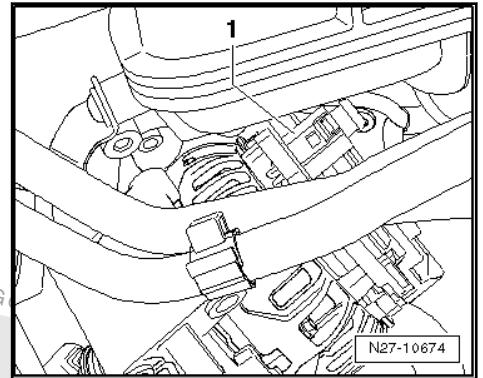
- Disengage the connector -2- and disconnect.



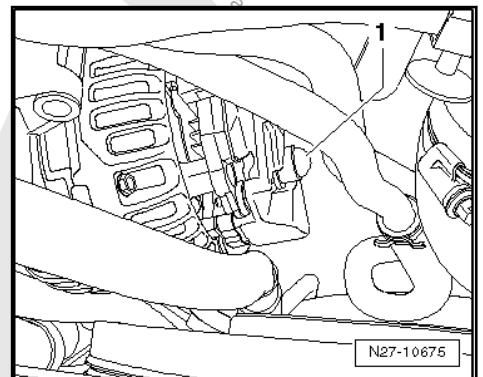
- Remove the upper screws -arrows- from the Generator -C-.
- Tilt the Generator -C- slightly to the left in order to be able to access the connections on the back of the generator.



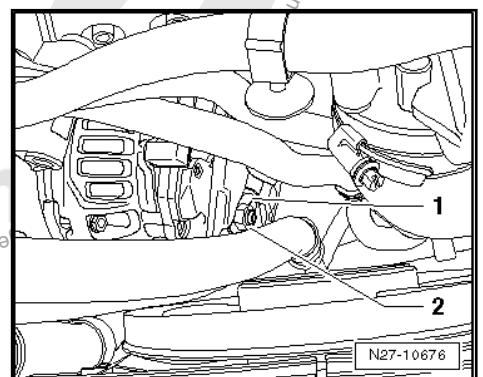
- Release and disconnect the (DF lead) -1- from the Generator -C-.



- Pry off the cover -1-.



- Remove the nut -2- and then remove the B+ wire -1- from the threaded connector on the Generator -C-.



- Remove the Generator -C-.

### Installing

Install in reverse order of removal. Note the following:



#### Caution

- ◆ When installing an already used ribbed belt, note direction of travel marked when it was removed!
- ◆ Before installing the ribbed belt, make sure all components (Generator -C-, A/C compressor/power steering pump) are securely fastened.
- ◆ When installing the ribbed belt, make sure it is properly seated in the belt pulley!

- Tighten the threaded connections to the previously noted tightening specifications. Refer to [⇒ G2.3 Generator C Overview, page 8](#).
- Connecting the Battery -A-. Refer to [⇒ C5.1.2 Connecting, page 17](#).
- Start the engine and check the belt routing.
- Turn off the engine.

### 5.9.2 Generator -C-

#### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-
- ◆ Torque Wrench 40-200 Nm -V.A.G 1332-



#### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [⇒ D5.1 Disconnecting and Connecting, page 16](#).*

#### Removing

- Disconnecting the Battery -A-. Refer to [⇒ D5.1.1 Disconnecting, page 16](#).
- Remove the engine cover. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 10; Removal and Installation.
- Bring the lock carrier into the service position. Refer to ⇒ Body Exterior; Rep. Gr. 50; Removal and Installation.



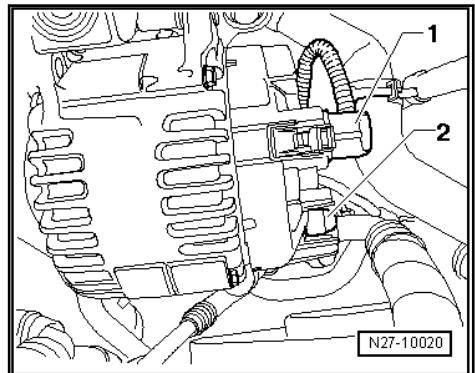
#### Caution

*Mark the top of the ribbed belt and the running direction before removal. Make sure the belt is installed correctly and pay attention to the running direction. If the belt is installed in the opposite running direction or is positioned incorrectly, the belt will fail!*

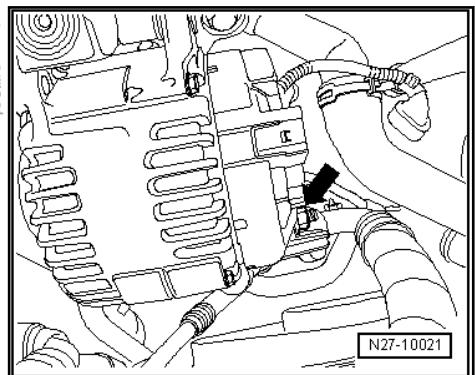
- Remove the ribbed belt. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 13; Removal and Installation.
- Release and disconnect the (DF lead) -1- from the Generator -C-.



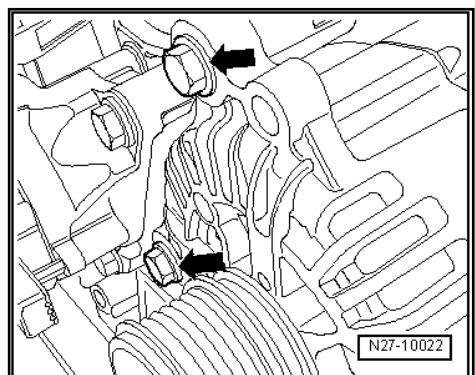
- Pry off the cover -2-.
- Disconnect the B+ wire -arrow- from the Generator -C-.

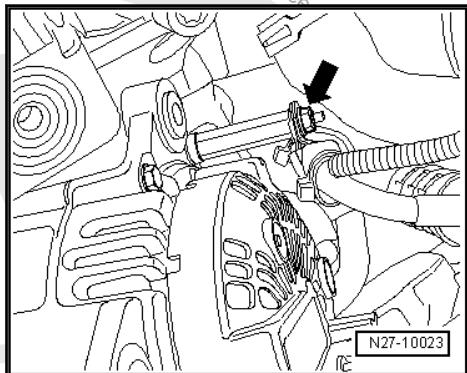


- Remove the upper idler roller, lower idler roller and the ribbed belt tensioning roller for the Generator -C- and the coolant pump. Refer to → Engine Mechanical, Fuel Injection and Ignition, Rep. Gr. 13; Description and Operation.
- Remove the screws -arrows- from the Generator -C-.



- Remove the wire holder -arrow- from the Generator -C-.





- Remove the Generator -C-.

### Installing

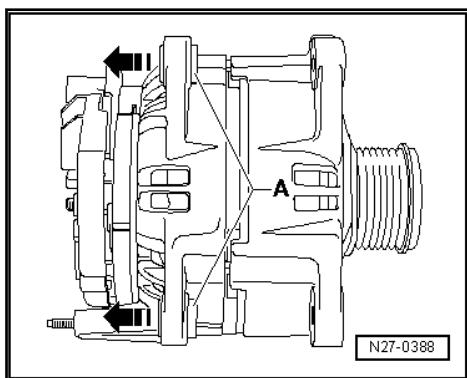
Install in reverse order of removal. Note the following:



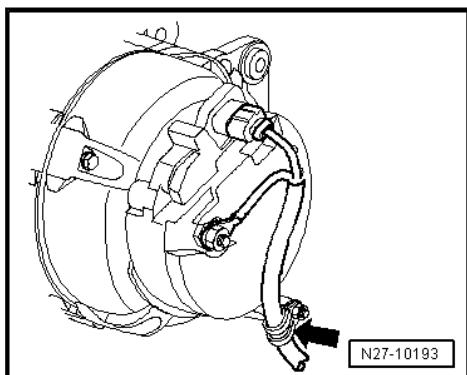
#### Caution

- ◆ When installing an already used ribbed belt, note direction of travel marked when it was removed!
- ◆ Before installing the ribbed belt, make sure all components (Generator -C-, A/C compressor/power steering pump) are securely fastened.
- ◆ When installing the ribbed belt, make sure it is properly seated in the belt pulley!

- Remove the threaded bushings -A- from the Generator -C- housing approximately 4 mm in the direction of the -arrow-.



- Attach the wire holder -arrow- on the back of the Generator -C- in the 9 o'clock position.





- Tighten the threaded connections to the previously noted tightening specifications. Refer to [⇒ G2.3 GeneratorC Overview](#), page 8.
- Connecting the Battery -A-. Refer to [⇒ C5.1.2 Connecting](#), page 17.
- Start the engine and check the belt routing.
- Turn off the engine.

### 5.9.3 Generator -C

#### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-
- ◆ Torque Wrench 40-200 Nm -V.A.G 1332-



#### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [⇒ D5.1 Disconnecting and Connecting](#), page 16.*

#### Removing

- Disconnecting the Battery -A-. Refer to [⇒ D5.1.1 Disconnecting](#), page 16.
- Remove the engine cover. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 10; Removal and Installation.
- Move the lock carrier into the service position. Refer to ⇒ Body Exterior; Rep. Gr. 50; Removal and Installation.



#### Caution

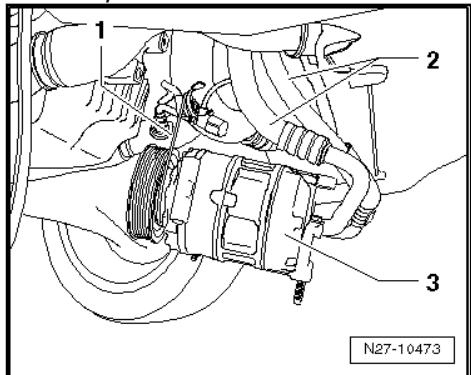
*Mark the top of the ribbed belt and the running direction before removal. Make sure the belt is installed correctly and pay attention to the running direction. If the belt is installed in the opposite running direction or is positioned incorrectly, the belt will fail!*

- Remove the ribbed belt. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 10; Removal and Installation.
- Remove the A/C compressor. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 87; Removal and Installation.

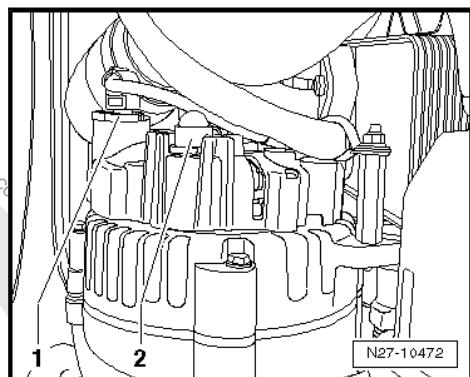


Note

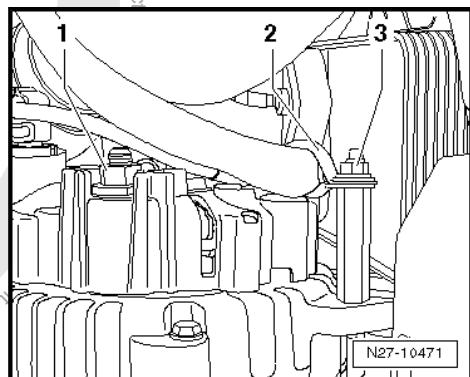
The hoses on the A/C compressor can remain connected.



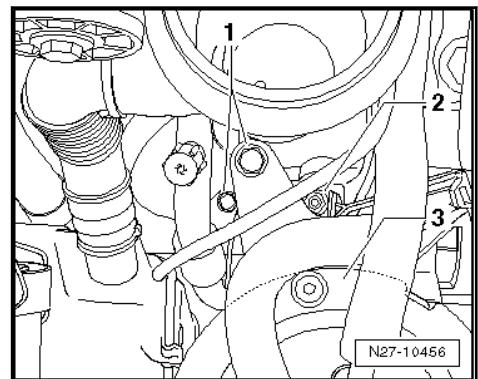
- ◆ Tie the A/C compressor -3- to a suitable place under the vehicle using a binding wire -1- until it is ready to be reinstated.
- ◆ Make sure the hoses -2- are not pulled off or kinked.
- Release and disconnect the (DF lead) -1- from the Generator -C-.



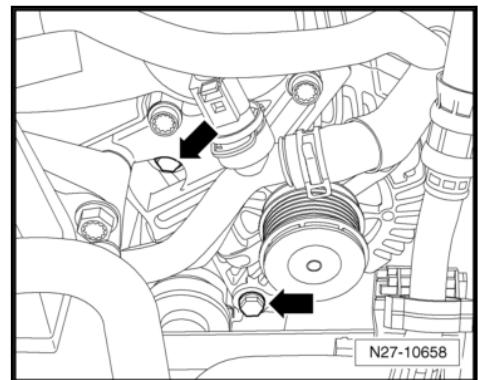
- Pry off the cover -2-.
- Remove the nut -1- and then remove the B+ wire from the threaded connector on the Generator -C-.



- Remove the nut -3- and the wire holder -2- from the Generator -C-.
- Remove the bolts -1- and nuts -2- from the fuel filter -3- and then move the fuel filter -3- to the side. The fuel hoses can remain connected.



- Remove the screws -arrows- from the Generator -C-.



- Remove the Generator -C-.

### Installing

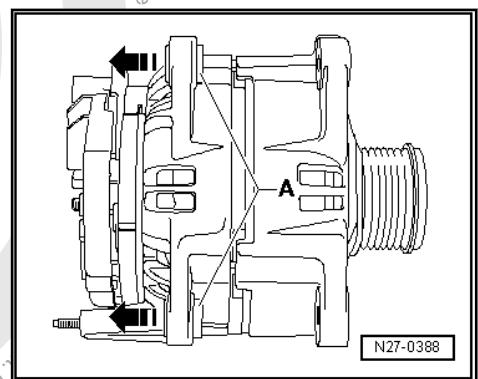
Install in reverse order of removal. Note the following:



#### Caution

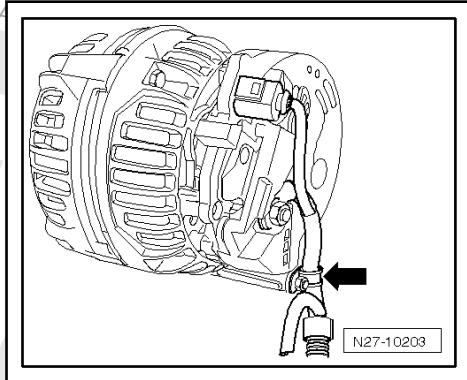
- ◆ When installing an already used ribbed belt, note direction of travel marked when it was removed!
- ◆ Before installing the ribbed belt, make sure all components (Generator -C-, A/C compressor/power steering pump) are securely fastened.
- ◆ When installing the ribbed belt, make sure it is properly seated in the belt pulley!

- Remove the threaded bushings -A- from the Generator -C- housing approximately 4 mm in the direction of the -arrow-.





- Attach the wire holder -arrow- on the back of the Generator -C- in the 3 o'clock position.



- Tighten the threaded connections to the previously noted tightening specifications. Refer to [G2.3 generatorC Overview](#), page 8 .



**Caution**

*Before installing the engine cover, make sure the four fasteners (ball sockets) are positioned correctly. Bring them into the correct position if necessary. Otherwise the engine cover will be damaged.*

- Place the engine cover on the mounting points and press the corners into the retainers.
- Connecting the Battery -A-. Refer to [C5.1.2 connecting](#), page 17 .
- Start the engine and check the belt routing.
- Turn off the engine.

## 5.10 Ribbed Belt Pulley

2.0L Gasoline Engine [B5.10.1 elt Pulley without Freewheel](#), page 52

[B5.10.2 elt Pulley with Freewheel \(Bosch\)](#), page 53

[B5.10.3 elt Pulley with Freewheel \(Valeo\)](#), page 55

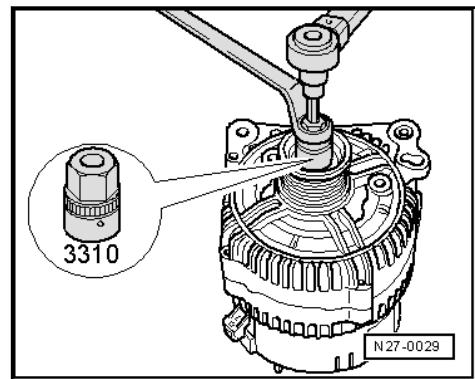
### 5.10.1 Ribbed Belt Pulley without Freewheel

Special tools and workshop equipment required

- ◆ Socket -VAS 3310-
- ◆ Torque Wrench 5-50 Nm -V.A.G 1332-

#### Removing

- Remove the Generator -C-. Refer to [G5.9 generatorC](#), page 43 .
- Secure the Generator -C- in a vice by the mounting points.
- Remove the ribbed belt pulley nut from the generator shaft using the Socket -VAS 3310-.



## Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the previously noted tightening specifications. Refer to [G2.3.3 generatorC Overview, page 10](#).

### 5.10.2 Ribbed Belt Pulley with Freewheel (Bosch)

#### Special tools and workshop equipment required

- ◆ Multi-Tooth Adapter -VAS 3400-
- ◆ Torque Wrench 40-200 Nm -V.A.G 1332-

#### Removing

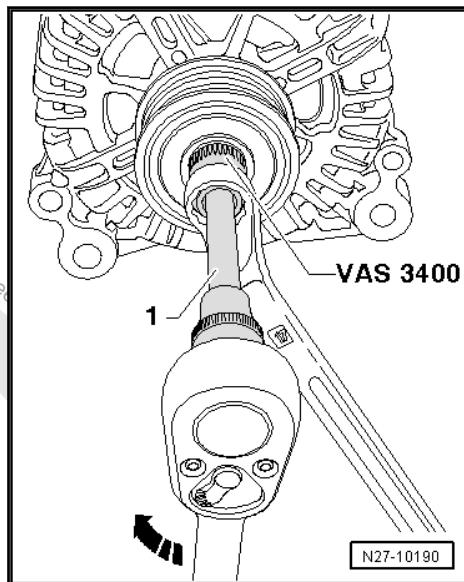
- Remove the Generator -C-. Refer to [G5.9 generatorC, page 43](#).
- Secure the Generator -C- in a vice by the mounting points.
- Remove the protective cap from the ribbed belt pulley with freewheel.



#### Note

The rotation direction for the Generator -C- is marked with an arrow on the front gear carrier (in the direction of the ribbed belt pulley). Respectively, the Multi-Tooth Adapter -VAS 3400- is also turned during installation and removal.

- Insert the Multi-Tooth Adapter -VAS 3400- into the pulley with ribbed belt pulley with freewheel for the Generator -C- using an open-end wrench.
- Place an M10 multi-point socket -1- into the generator shaft.



- Loosen the threaded connection by turning it opposite the direction of the arrow on the Generator -C- and counterholding it with the wrench.
- Hold the ribbed belt pulley with freewheel in place by hand and turn it at the Generator -C- input shaft until the ribbed belt pulley can be removed with freewheel.

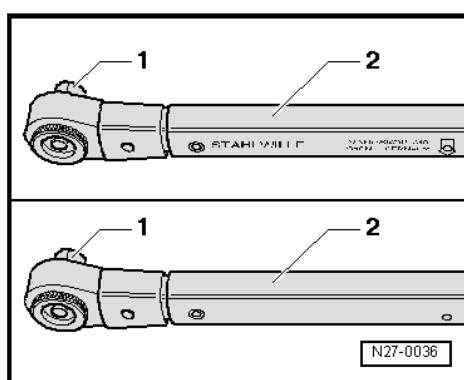
### Installing

Install in reverse order of removal. Note the following:

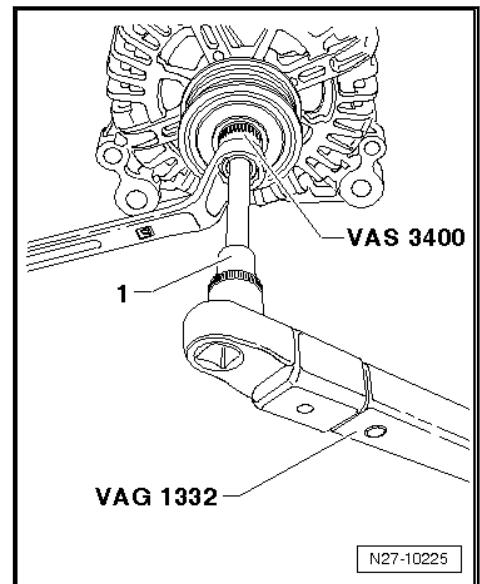
- Attach the ribbed belt pulley with freewheel to the Generator -C- input shaft all the way by hand.

Torque Wrench 40-200 Nm -V.A.G 1332- must be rearranged for installing ribbed belt pulley with freewheel as follows:

- Release the insert -1- and pull it from the handle -2-.



- Turn the handle -2- on the Torque Wrench 40-200 Nm - V.A.G 1332- 180 degrees and install the bit -1-.
- Set the appropriate rotation direction for the torque wrench at the socket.
- Place an M10 multi-point socket -1- into the generator shaft.



- Counterhold the Multi-Tooth Adapter -VAS 3400- with the open-end wrench.
- Tighten the ribbed belt pulley with freewheel by turning the Generator -C- input shaft in the direction of the arrow on the Generator -C- with the Torque Wrench 40-200 Nm -V.A.G 1332-.
- Tighten the threaded connections to the previously noted tightening specifications. Refer to [G2.3 generatorC Over-view](#), page 8 .

### 5.10.3 Ribbed Belt Pulley with Freewheel (Valeo)

#### Special tools and workshop equipment required

- ◆ Multi-Tooth Adapter -VAS 3400-
- ◆ Torque Wrench 40-200 Nm -V.A.G 1332-
- ◆ TORX Key Socket Set -V.A.G 1603/1-

#### Removing

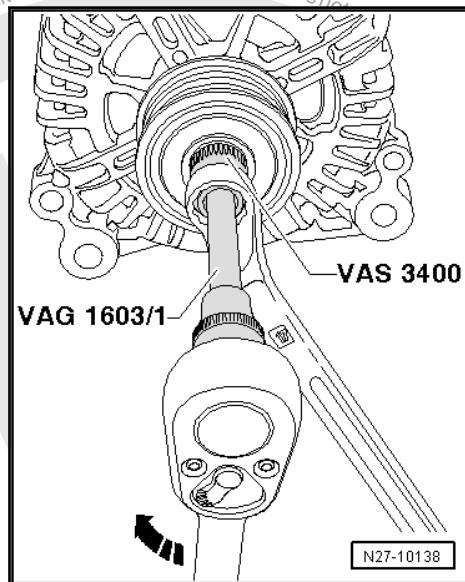
- Remove the Generator -C-. Refer to [G5.9 generatorC](#) , page 43 .
- Secure the Generator -C- in a vice by the mounting points.
- Remove the protective cap from the ribbed belt pulley with freewheel.



#### Note

*The threads on the generator shaft are a left-handed thread, therefore, rotate it clockwise to loosen and counter-clockwise to tighten.*

- Insert the Multi-Tooth Adapter -VAS 3400- into the pulley with ribbed belt pulley with freewheel for the generator -C- using and open-end wrench.
- Insert the TORX Key Socket Set -V.A.G 1603/1- into the generator shaft.



- Turn the threaded connection to the right while counterholding it with the open-end wrench.
- Hold the ribbed belt pulley with freewheel in place by hand and turn it at the Generator -C- input shaft until the ribbed belt pulley can be removed with freewheel.

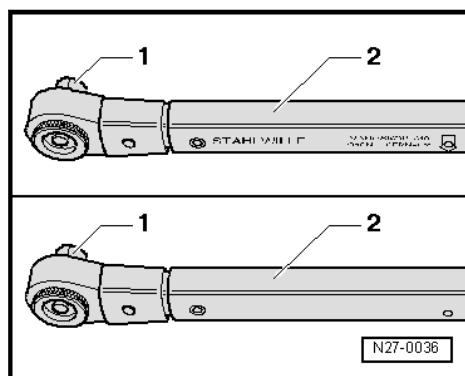
### Installing

Install in reverse order of removal. Note the following:

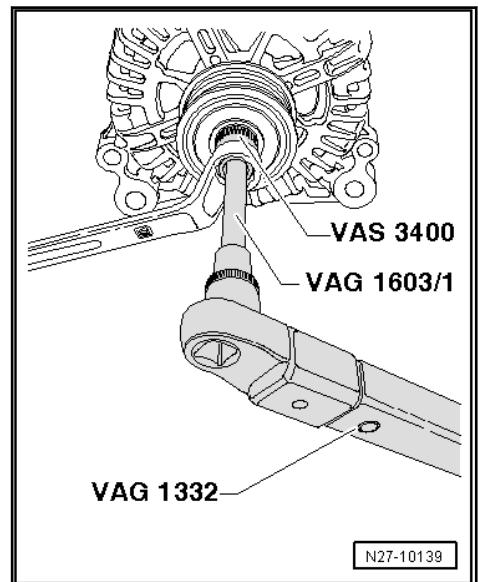
- Attach the ribbed belt pulley with freewheel to the Generator -C- input shaft all the way by hand.

Torque Wrench 40-200 Nm -V.A.G 1332- must be rearranged for installing ribbed belt pulley with freewheel as follows:

- Release the insert -1- and pull it from the handle -2-.



- Turn the handle -2- on the Torque Wrench -V.A.G 1332- 180 degrees and install the bit.
- Set the turn direction Torque Wrench -V.A.G 1332- to the left.
- Insert the TORX Key Socket Set -V.A.G 1603/1- into the generator shaft.



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- Counterhold the Multi-Tooth Adapter -VAS 3400- with the open-end wrench.
- Tighten the free-wheeling ribbed belt pulley by turning the Generator (GEN) -C- input shaft to the left using the Torque Wrench -V.A.G 1332-.
- Tighten the threaded connections to the previously noted tightening specifications. Refer to [G2.3 generatorC Over-view](#), page 8 .

## 5.11 Voltage Regulator

[⇒ V5.11.1 Voltage Regulator C1 \(Bosch\)](#), page 57

[⇒ V5.11.2 Voltage Regulator C1 \(Valeo\)](#), page 58

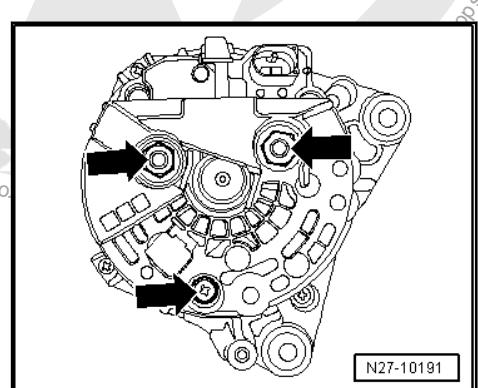
### 5.11.1 Voltage Regulator -C1- (Bosch)

Special tools and workshop equipment required

◆ Torque Screwdriver -V.A.G 1624-

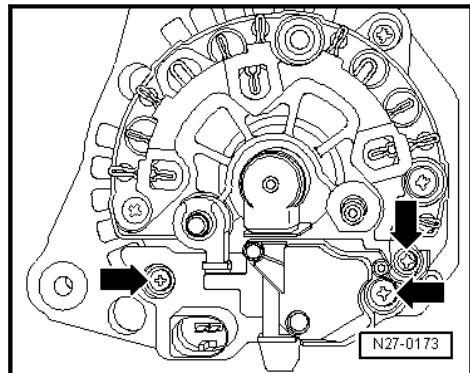
#### Removing

- Remove the Generator -C-. Refer to [G5.9 generatorC](#) , page 43 .
- Remove the bolt and the nuts -arrows- and remove the cover from the Generator -C-.



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- Remove the screws -arrows- from the Voltage Regulator -C1-.



- Remove the Voltage Regulator -C1- from the Generator -C-.

#### Installing

Install in reverse order of removal.

- Tighten the threaded connections to the previously noted tightening specifications. Refer to [G2.3 generatorC Overview](#), page 8 .

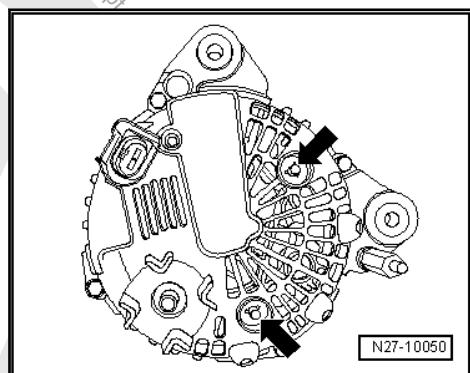
### 5.11.2 Voltage Regulator -C1- (Valeo)

#### Special tools and workshop equipment required

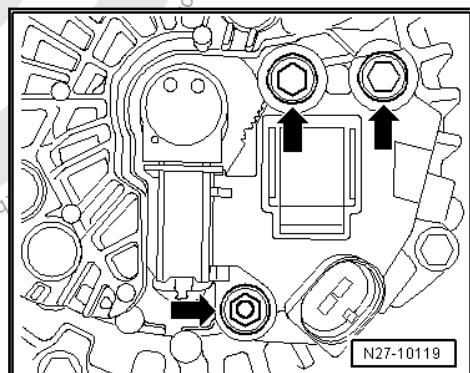
- ◆ Torque Wrench -V.A.G 1783/-

#### Removing

- Remove the Generator -C-. Refer to [G5.9 generatorC](#), page 43 .
- Remove the locking rings -arrows- and remove the cover from the Generator -C-.



- Remove the screws -arrows- from the Voltage Regulator -C1-.



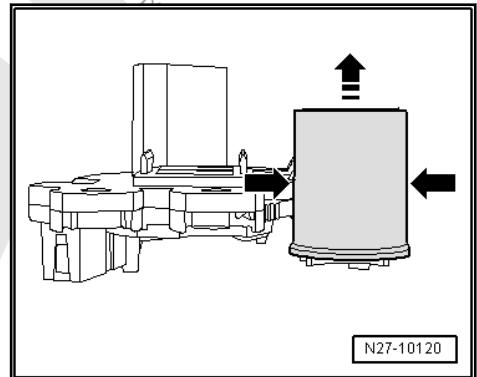


- Remove the Voltage Regulator -C1- from the Generator -C-.

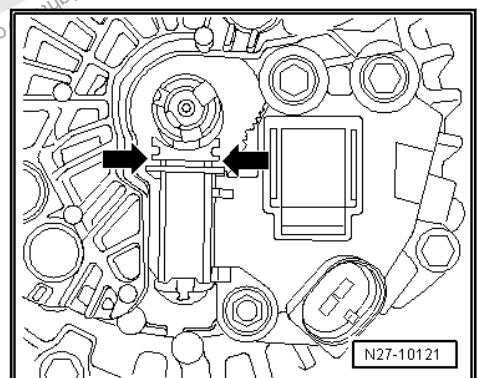
### Installing

Install in reverse order of removal. Note the following:

- Open the tabs -arrows- and remove the cap from the Voltage Regulator -C1-.



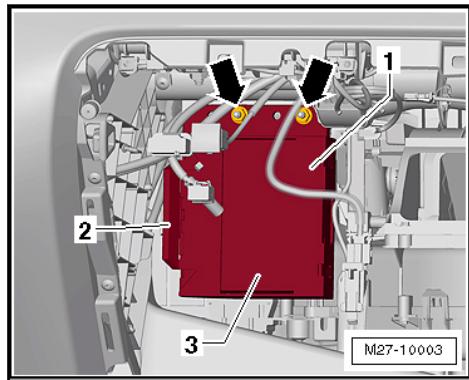
- Push the carbon brushes into the Voltage Regulator -C1- housing and insert the Voltage Regulator -C1- into the Generator -C-.
- Tighten the threaded connections to the previously noted tightening specifications. Refer to ⇒ [G2.3 GeneratorC Overview](#), page 8 .
- Push the cap into the guides -arrows- until it audibly engages.



## 5.12 Voltage Stabilizer -J532-

### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Remove the plastic nuts -arrows-, the Voltage Stabilizer -J532- -3- and the bracket -1-, paying attention to the wires that are still connected.



- Disengage the connector -2- and disconnect.
- Remove the Voltage Stabilizer -J532- -3- from the bracket -1-.

### Installing

Install in reverse order of removal. Note the following:

- Tighten the plastic bolts to 1.5 Nm.





## 6 Special Tools

### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-

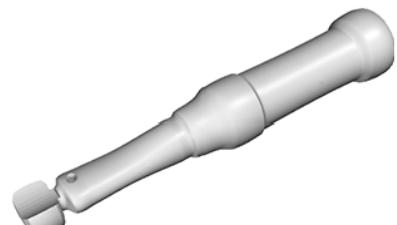
V.A.G 1331



W00-0427

- ◆ Torque Wrench -V.A.G 1783/-

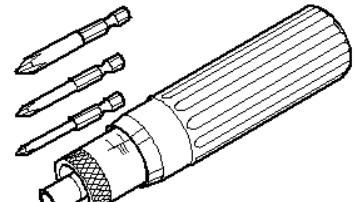
V.A.G 1783



W00-0990

- ◆ Torque Screwdriver -V.A.G 1624-

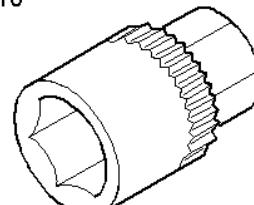
V.A.G 1624



W00-0984

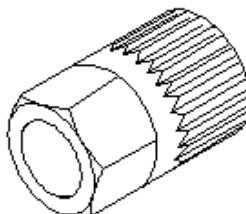
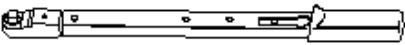
- ◆ Socket -VAS 3310-

3310



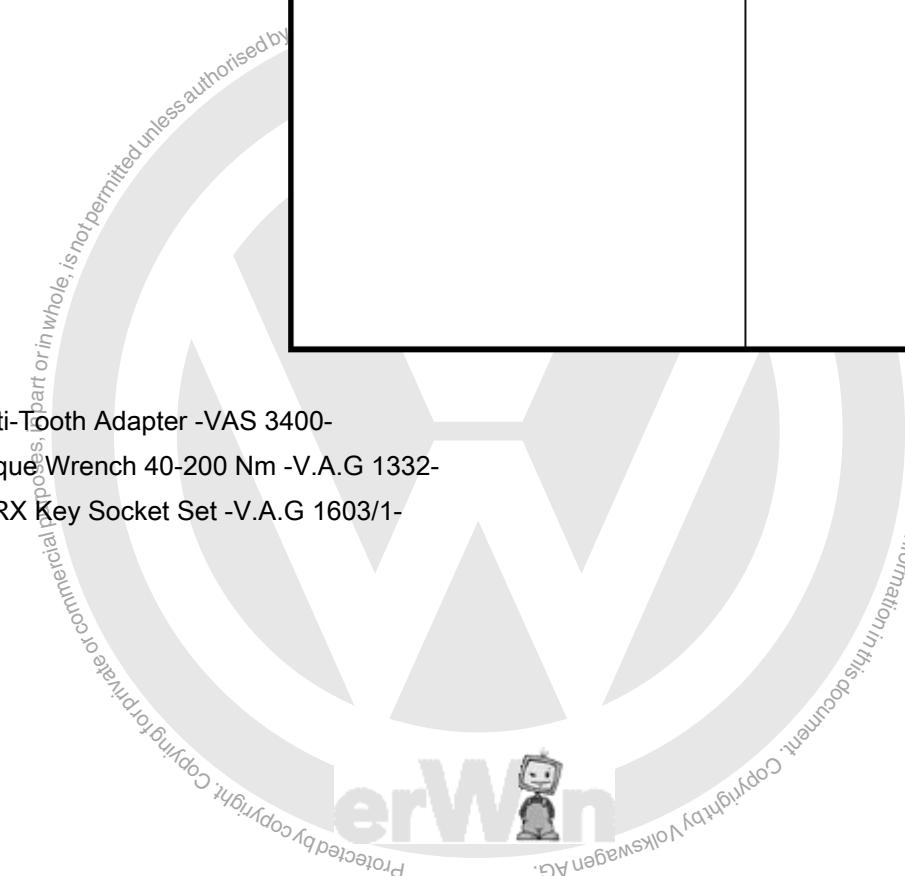
W00-0299



<b>3400</b> 	<b>V.A.G 1332</b> 
<b>V.A.G 1603/1</b> 	

W27-10006

- ◆ Multi-Tooth Adapter -VAS 3400-
- ◆ Torque Wrench 40-200 Nm -V.A.G 1332-
- ◆ TORX Key Socket Set -V.A.G 1603/1-





## 90 – Instruments

### 1 General Information

⇒ [C1.1 luster", page 63](#)

⇒ [C1.2 luster, Replacing", page 63](#)

#### 1.1 Instrument Cluster

The following components are located inside the instrument cluster:

- ◆ Instrument Cluster Control Module -J285-
- ◆ Anti-Theft Immobilizer Control Module -J362-
- ◆ Speedometer -G21-
- ◆ Tachometer -G5-
- ◆ Fuel Gauge -G1-
- ◆ Coolant Temperature Gauge -G3-
- ◆ Multifunction indicator
- ◆ Indicator lamps

To audibly support the visual displays of the instrument panel insert, the Instrument Cluster Control Module -J285- activates a warning buzzer.

All control lamps are equipped with Light-Emitting Diodes (LEDs). Servicing the instrument cluster is not planned. In the event of malfunctions, the complete instrument cluster must be replaced .

The Data Bus On Board Diagnostic Interface -J533- is designed as a separate control module, refer to ⇒ [D5.6 Data Bus On Board Diagnostic Interface J533 ", page 449](#) .

#### DTC recognition and display

The instrument cluster is equipped with On Board Diagnostic (OBD) capabilities

Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.

#### Service Interval Display, Resetting

Refer to Maintenance Manual.

#### 1.2 Instrument Cluster, Replacing

Work procedure "replace instrument cluster" contains the following scope of work:

- ◆ If a new instrument panel is installed, the Instrument Cluster Control Module -J285- must be set for the various equipment characteristics, coding and service data.
- ◆ To adapt the integrated Anti-Theft Immobilizer Control Module -J362- with the Engine Control Module -J623-, it is necessary to save the data from the Engine Control Module -J623- in the new replacement instrument cluster.
- ◆ Also, all ignition keys must be adapted after installation of a new instrument cluster.



### Note

The procedure to “replace the instrument cluster” can only be performed in the “guided fault finding” function using the Vehicle Diagnostic Tester.

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 17 - Instrument cluster
  - ◆ Instrument cluster functions
  - ◆ Instrument Cluster, Replacing





## 2 Description and Operation

⇒ [C2.1 luster Indicator Lamp Symbols, through MY 2009", page 65](#)

⇒ [C2.2 luster Indicator Lamp Symbols, from MY 2010", page 67](#)

⇒ [C2.3 luster Rear Side, through MY 2009", page 69](#)

⇒ [C2.4 luster Rear Side, from MY 2010", page 69](#)

⇒ [C2.5 luster Connector Contact Assignment", page 69](#)

### 2.1 Instrument Cluster Indicator Lamp Symbols, through MY 2009

Different instrument clusters are used, depending on vehicle equipment. Therefore, the arrangement of the control lamps may deviate from the illustration.





1 - Malfunction Indicator Lamp -K83-

2 - Electronic Power Control Malfunction Indicator Lamp -K132-

- Only on vehicles with a gasoline engine

3 - Anti-Theft Engine Disable Indicator Light -K115-

4 - Generator Indicator Lamp -K2-

5 - Lamp Failure Indicator Lamp -K170-

6 - Rear Fog Lamp Indicator Lamp -K13-

7 - Low Engine Coolant Level Indicator Lamp -K36-

8 - Brake Pad Wear Indicator Lamp -K32-

9 - Windshield Washer Fluid Level Indicator Lamp -K37-

10 - Low Fuel Level Indicator Lamp -K16-

11 - Airbag Indicator Lamp -K75-

12 - Seat Belt Indicator Lamp -K19-

13 - ABS Indicator Lamp -K47-

14 - ASR/ESP Indicator Lamp -K155-

15 - Brake System Indicator Lamp -K118-

16 - Indicator Lamp -K31-

17 - Daytime Running Lamp (DRL) Indicator Lamp -K205-

18 - Tire Pressure Monitoring Display Indicator Lamp -K220-

19 - Water in fuel

20 - Rear Seat Backrest Lock Indicator Lamp -K193-

21 - Shift Lock Indicator Lamp -K169-

- Only on vehicles with an automatic transmission

22 - Oil Level Indicator Lamp -K38-

23 - Hood -Open- Indicator Lamp -K171-

24 - Door Ajar Indicator Lamp -K166-

25 - Oil Pressure Indicator Lamp -K3-

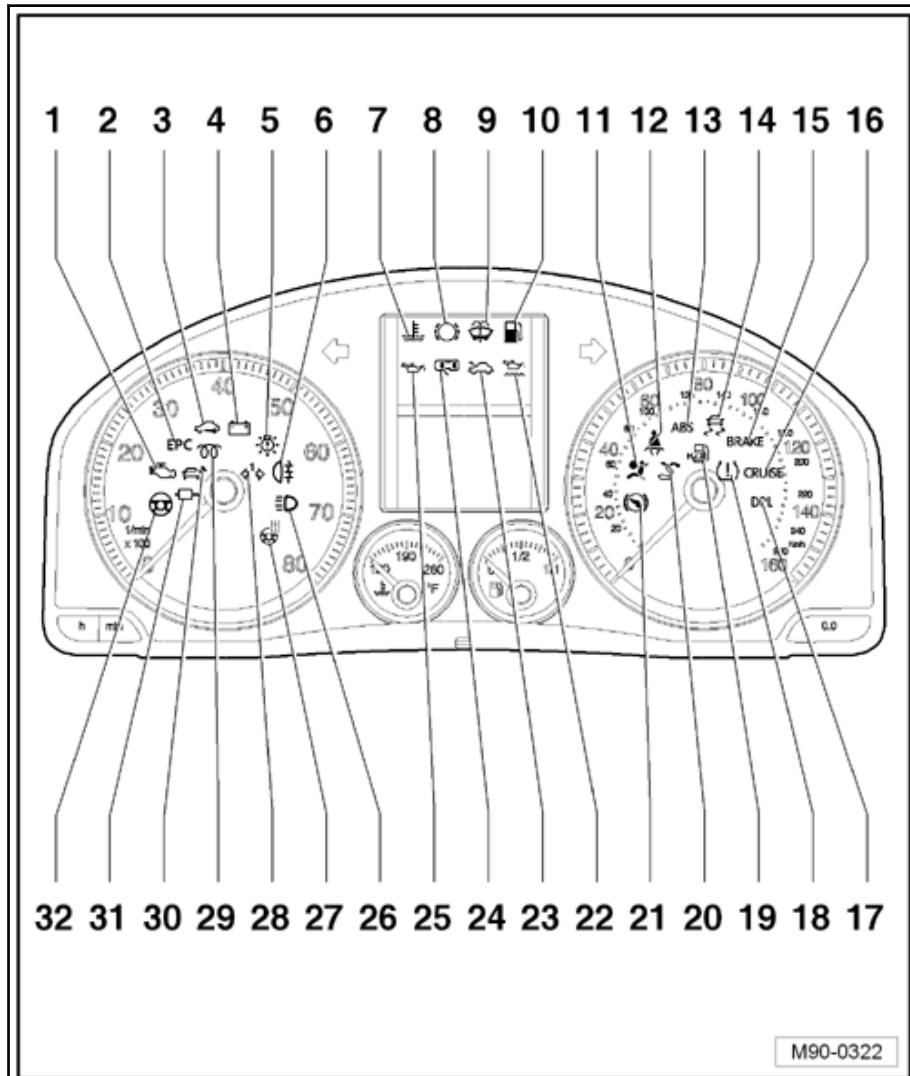
26 - High Beam Indicator Lamp -K1-

27 - Steering wheel heater

28 - Trailer Operation Indicator Lamp -K18-

29 - Glow plug indicator lamp -K29-

- Only on vehicles with a Diesel engine





- 30 - Fuel Filler Door Lock Indicator Lamp -K201-
- 31 - Diesel Particulate Filter Indicator Lamp -K231-
- 32 - Electromechanical Power Steering Indicator Lamp -K161-

## 2.2      Instrument Cluster Indicator Lamp Symbols, from MY 2010

Different instrument clusters are used, depending on vehicle equipment. Therefore, the arrangement of the control lamps may deviate from the illustration.





1 - Glow Plug Indicator Lamp  
-K29-

Only on vehicles with a Diesel engine

- Engine Electronics Indicator Lamp -K149-

2 - Electronic Power Control Malfunction Indicator Lamp -K132-

3 - Fuel Filler Door Lock Indicator Lamp -K201-

4 - Oil Pressure Indicator Lamp -K3-

5 - Lamp Failure Indicator Lamp -K170-

6 - Rear Fog Lamp Indicator Lamp -K13-

7 - Windshield Washer Fluid Level Indicator Lamp -K37-

8 - High Beam Indicator Lamp -K1-

9 - Seat Belt Indicator Lamp -K19-

10 - ABS Indicator Lamp -K47-

11 - ASR/ESP Indicator Lamp -K155-

12 - Brake System Indicator Lamp -K118-

13 - Indicator Lamp -K31-

14 - Tire Pressure Monitoring Display Indicator Lamp -K220-

15 - Brake Pad Wear Indicator Lamp -K32-

16 - Shift Lock Indicator Lamp -K169-

17 - Low Fuel Level Indicator Lamp -K105-

18 - Door Ajar Indicator Lamp -K166-

19 - Rear Lid -Open- Indicator Lamp -K127-

20 - Airbag Indicator Lamp -K75-

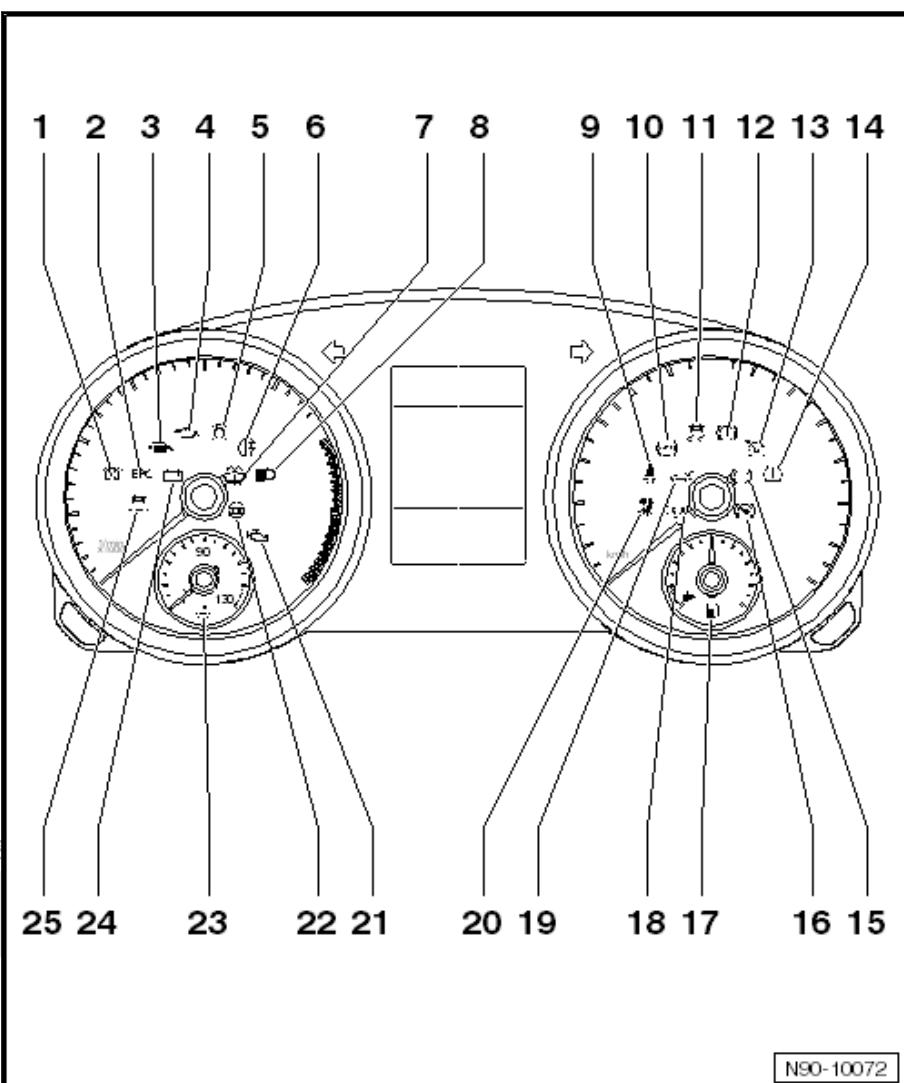
21 - Malfunction Indicator Lamp -K83-

22 - Electromechanical Power Steering Indicator Lamp -K161-

23 - Engine Coolant Level/Temperature Indicator Lamp -K28-

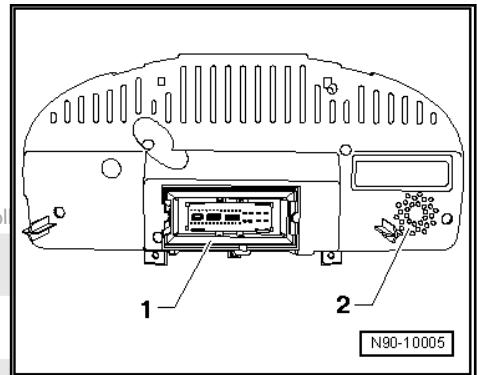
24 - Generator Indicator Lamp -K2-

25 - Not Assigned





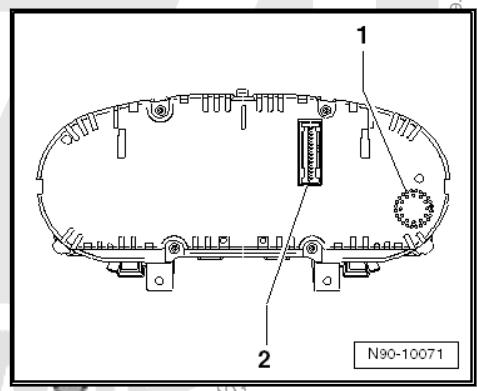
## 2.3 Instrument Cluster Rear Side, through MY 2009



- 1 - 36-Pin Connector
- 2 - Buzzer

Do not disassemble instrument cluster. In the event of malfunctions, replace complete instrument cluster.

## 2.4 Instrument Cluster Rear Side, from MY 2010



- 1 - Buzzer
- 2 - 32-Pin Connector

Do not disassemble instrument cluster. In the event of malfunctions, replace complete instrument cluster.

## 2.5 Instrument Cluster Connector Contact Assignment

Connector Assignment, Instrument Cluster. Refer to Wiring diagrams, Troubleshooting & Component locations.



### 3 Specifications

⇒ [T3.1 Tightening Specifications", page 70](#)

#### 3.1 Fastener Tightening Specifications

Component	Fastener Size	Nm
Horn to Bracket Nut	-	10
Horn Bracket to Body Bolt	-	20
Instrument Cluster	-	1.5





## 4 Diagnosis and Testing

⇒ **H4.1 High Tone Horn H2 and Low Tone Horn H7, Checking", page 71**

### 4.1 High Tone Horn -H2- and Low Tone Horn -H7-, Checking

The High Tone Horn -H2-/Low Tone Horn -H7- can be checked using the Vehicle Electrical System Control Module -J519- output Diagnostic Test Mode (DTM) ⇒ **V5.5 Vehicle Electrical System Control Module J519", page 439**.



## 5 Removal and Installation

⇒ C5.1 luster, through MY 2009", page 72

⇒ C5.2 luster, from MY 2010", page 73

⇒ H5.3 High Tone HornH2 and Low Tone HornH7 ", page 74

### 5.1 Instrument Cluster, through MY 2009

Before removing the instrument cluster, perform the "Replace instrument cluster" procedure to read out the data saved in the Instrument Cluster Control Module -J285- ⇒ C1.2 luster, Replacing", page 63 .

#### Removing

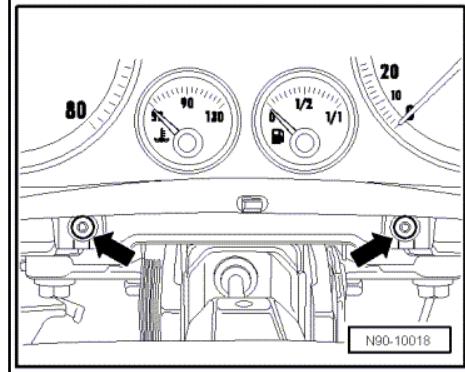
- Turn off the ignition and all electrical consumers and remove the ignition key.



#### Note

*It is not necessary to remove the steering wheel.*

- Pull the steering wheel all the way out and then lower as far down as it will go.
- Remove upper section of the trim from the steering column. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Remove the bolts -arrows-.



#### Note

*The fixed electrical connection to the instrument cluster is disconnected automatically when the cluster is pulled out of the instrument panel opening. Harness connector is installed permanently in vehicle and is disconnected automatically when pulling out instrument cluster.*

- Remove the instrument cluster out of the instrument panel directly toward the rear.

#### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connection to 1.5 Nm.



## 5.2 Instrument Cluster, from MY 2010

Before removing the instrument cluster, perform the "Replace instrument cluster" procedure to read out the data saved in the Instrument Cluster Control Module -J285- ⇒ [C1.2 luster, Replacing](#), page 63 .

### Removing

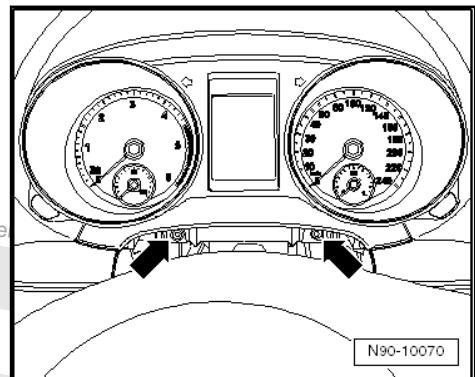
- Turn off the ignition and all electrical consumers and remove the ignition key.



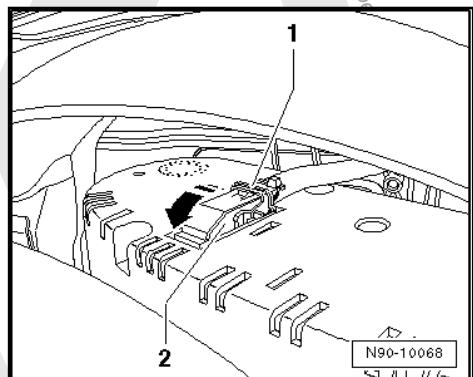
#### Note

*It is not necessary to remove the steering wheel.*

- Pull the steering wheel all the way out and then lower as far down as it will go.
- Remove upper section of the trim from the steering column. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Remove the bolts -arrows-.



- Pull the instrument cluster back out of the instrument panel while being careful of the connected wires.
- Move the securing clip -1- in the direction of the -arrow- and disconnect the connector -2-.



- Remove the instrument cluster from the vehicle.

### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connection to 1.5 Nm.



## 5.3 High Tone Horn -H2- and Low Tone Horn -H7-

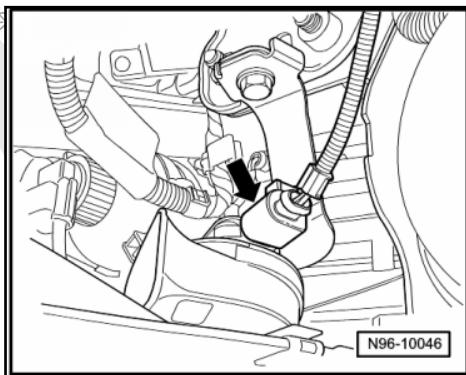
The High Tone Horn -H2-/Low Tone Horn -H7- are activated in parallel by the Vehicle Electrical System Control Module -J519-.

The High Tone Horn -H2-/Low Tone Horn -H7- are installed on the left and right near the longitudinal members.

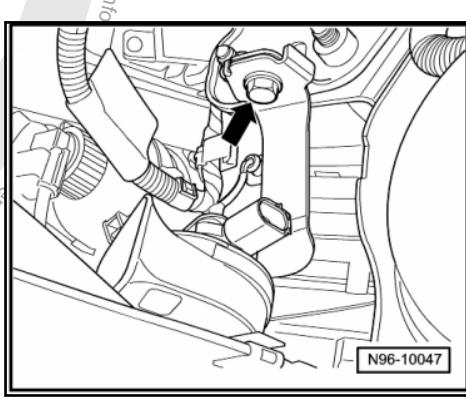
The High Tone Horn -H2-/Low Tone Horn -H7- are removed and installed the same way.

### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove the noise insulation. Refer to ➤ Body Exterior; Rep. Gr. 50; Description and Operation.
- Disconnect the connector -arrow-.



- Remove the screw -arrow- and the High Tone Horn -H2-.



### Installing

Install in reverse order of removal. Note the following:

When installing, position the horns so that they are not touching any surrounding components.

### Tightening Specifications

- ◆ Bolt to longitudinal member: 20 Nm
- ◆ Nut: 10 Nm



## 92 – Wiper/Washer Systems

### 1 General Information

⇒ [W1.1 iper Motor Control ModuleJ400, Deactivating APP”, page 75](#)

⇒ [F1.2 uid Line Hose Connections”, page 75](#)

⇒ [R1.3 epairing”, page 76](#)

#### 1.1 Windshield Wiper Motor Control Module -J400-, Deactivating APP

The windshield wiper system is equipped with the APP function (alternating park position).

The APP function causes the wiper at every second shut off to move upward slightly after reaching the lowest position.

To install the motor crank on the Windshield Wiper Motor -V-, it is necessary to shut off the Windshield Wiper Motor -V- in the lower park position. This is attained by deactivating the APP function.

Note the following:

- ◆ An activation of APP function is not possible.
- ◆ APP function is automatically activated after 100 wiping cycles. This applies to Windshield Wiper Motor -V- in which the APP function was deactivated as well as new Windshield Wiper Motor -V-.

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select [Guided Fault Finding](#).
- Use the [GO TO](#) button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions
  - ◆ Coding the wiper motor control module/deactivating the APP function

#### 1.2 Washer Fluid Line Hose Connections

##### Note

All instructions and information on this chapter can be found in the repair manual “Electrical Equipment General Information”. A link to this repair manual is not possible at this time due to technical reasons. Refer to repair manual “Electrical Equipment General Information” in ELSA.



## 1.3 Hoses, Repairing



### Note

All instructions and information on this chapter can be found in the repair manual "Electrical Equipment General Information". A link to this repair manual is not possible at this time due to technical reasons. Refer to repair manual "Electrical Equipment General Information" in ELSA.





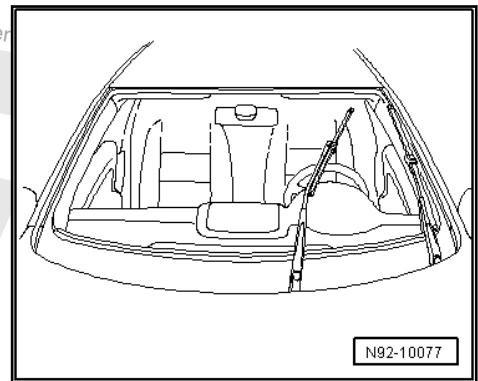
## 2 Description and Operation

- ⇒ [W2.1 Asher System Overview", page 77](#)
- ⇒ [W2.2 Asher System Component Location", page 78](#)
- ⇒ [W2.3 Indow Washer System Overview", page 79](#)
- ⇒ [W2.4 Indow Washer System Component Location", page 80](#)
- ⇒ [W2.5 Asher System Overview", page 81](#)

### 2.1 Windshield Washer System Overview

The Wiper Motor Control Module -J400- is integrated with the Windshield Wiper Motor -V-.

To remove wiper blades, wiper arms must be driven into "service/winter position". The "service/winter position" is activated by operating windshield wiper lever in "one-touch wiping" position within 10 seconds after switching off ignition.



#### DTC recognition and display

The Vehicle Electrical System Control Module -J519- is equipped with OBD.

Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.





**1 - Nut**

- 20 Nm

**2 - Joint-Free Windshield Wiper**

- Removing and installing. Refer to [W4.4 iper Blades](#), page 90.
- Park Position, adjusting. Refer to [W4.3 iper Blades, Adjusting Park Position](#), page 89.

**3 - Wiper Arms**

- Removing and installing. Refer to [W4.1 iper Arms](#), page 85.

**4 - Bolt**

- 8 Nm

**5 - Wiper Frame with Linkage**

- Removing and installing. Refer to [F4.2.1 rame with Linkage and Windshield Wiper MotorV](#), page 87.

**6 - Windshield Wiper Motor - V- with Windshield Wiper Motor Control Module -J400-**

- for removing and installing the wiper frame. Refer to [W4.2.2 in-dshield Wiper MotorV](#), page 87.
- Wiper Motor Control Module -J400- Coding/Deactivating the APP Function. Refer to [W1.1 iper Motor Control ModuleJ400, Deactivating APP](#), page 75 .

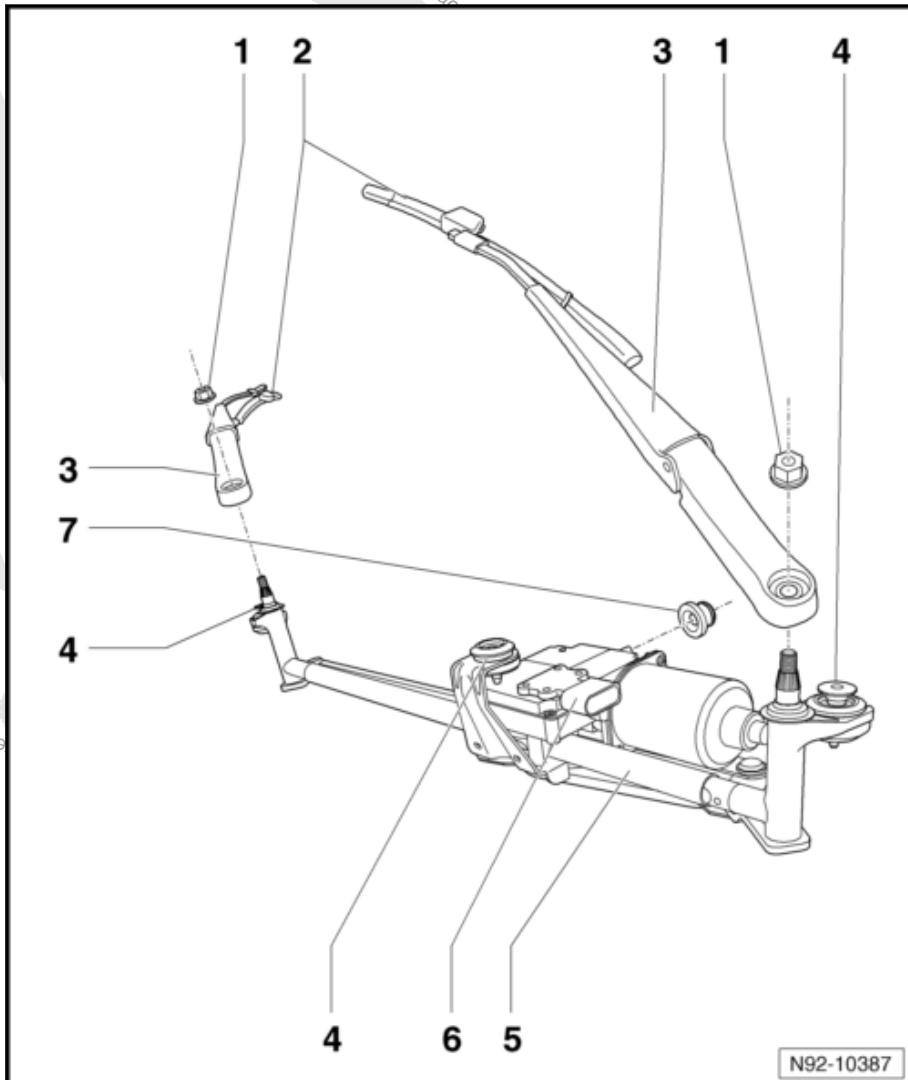
**7 - Rubber Grommet in the Bulkhead**

- Note installation instructions [F4.2.1 rame with Linkage and Windshield Wiper MotorV](#), page 87

**No illustration**

- ◆ Windshield wiper motor -V- bolts to the wiper frame with linkage – 8 Nm
- ◆ Windshield wiper motor crank to Windshield Wiper Motor shaft: 18 Nm

## 2.2 Windshield Washer System Component Location





#### 1 - Y-connection

- Divides washer fluid line to the windshield washer spray nozzles.

#### 2 - Right Windshield Washer Spray Nozzle

- Removing and installing. Refer to [S4.9 spray Nozzles](#), page 100 .
- Aiming. Refer to [S4.10 spray Nozzles, Adjusting](#), page 101 .

#### 3 - Left Windshield Washer Spray Nozzle

- Removing and installing. Refer to [S4.9 spray Nozzles](#), page 100 .
- Aiming. Refer to [S4.10 spray Nozzles, Adjusting](#), page 101 .

#### 4 - Angle Coupling

- Connection to the left windshield washer spray nozzle
- Overview of washer fluid hose couplings. Refer to [F1.2 luid Line Hose Connections](#), page 75 .

#### 5 - Hose

- Hose repair. Refer to [R1.3 epairing](#), page 76 .

#### 6 - Angle Coupling

- Connection to the right windshield washer spray nozzle
- Overview of washer fluid hose couplings. Refer to [R1.3 epairing](#), page 76 .

#### 7 - Reservoir Filler Tube for Windshield Washer System and Headlamp Cleaning System

- Removing and installing. Refer to [T4.6.1 ube](#), page 96 .

#### 8 - Windshield and Rear Window Washer Pump -V59-

- Removing and installing. Refer to [W4.7 indshield and Rear Window Washer PumpV59](#), page 98 .

#### 9 - Windshield Washer System and Headlamp Washer System Washer Fluid Reservoir

- Removing and installing. Refer to [4.6.2](#), page 97 .

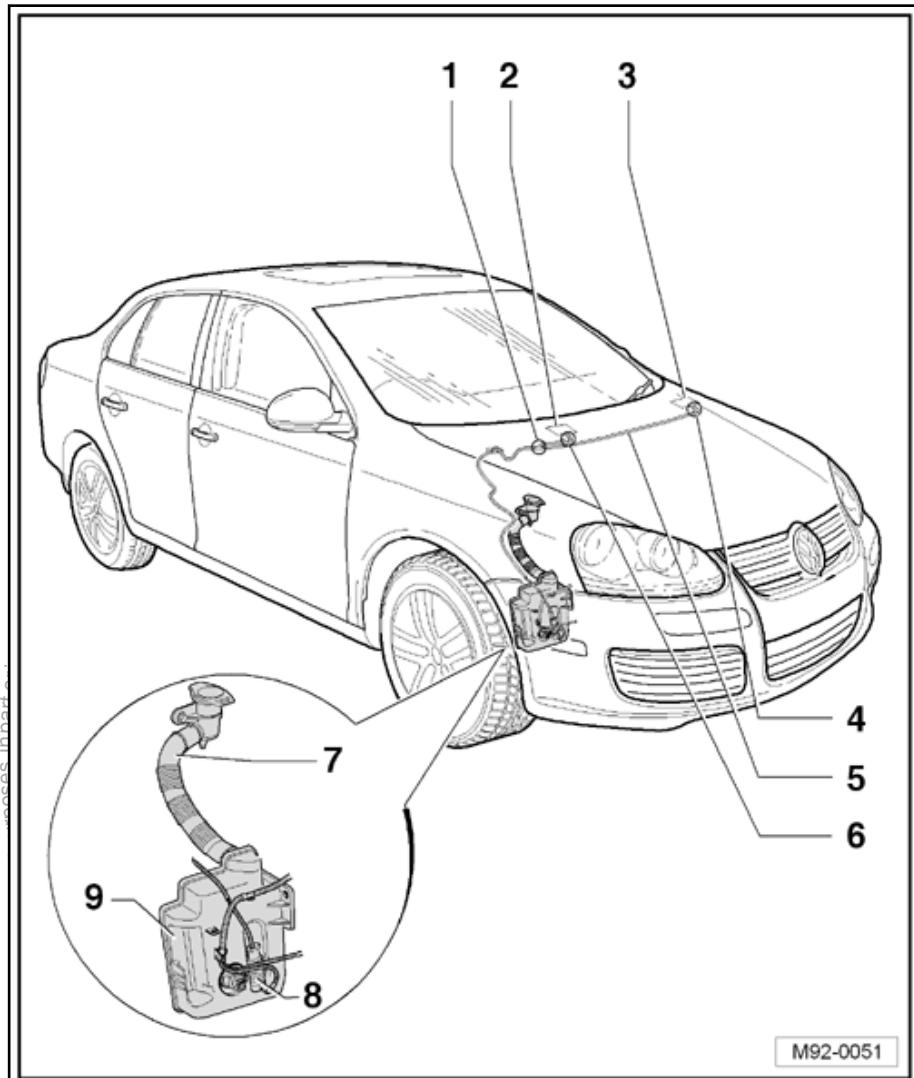
#### - Windshield Washer Fluid Level Sensor -G33-

- Removing and installing. Refer to [W4.8 indshield Washer Fluid Level SensorG33](#), page 99 .

#### No illustration

- ◆ Windshield and headlamp washer fluid reservoir to body: 8 Nm

### 2.3 Rear Window Washer System Overview



M92-0051



1 - Cap

2 - Nut

- 12 Nm

3 - Wiper Arm

- Removing and installing. Refer to [W4.11 Wiper Arm](#), page 101.
- Park Position, adjusting. Refer to [W4.13 Rear Window Wiper Blade Park Position, Adjusting](#), page 103.

4 - Seal

5 - Spray Nozzle

- Replacing. Refer to [W4.15 Rear Window Washer Spray Nozzle](#), page 105.
- Aiming. Refer to Maintenance Manual.

6 - Seal

7 - Rear Window Wiper Motor  
-V12-

- Removing and installing. Refer to [R4.12 Rear Window Wiper Motor V12](#), page 102.

8 - Nut

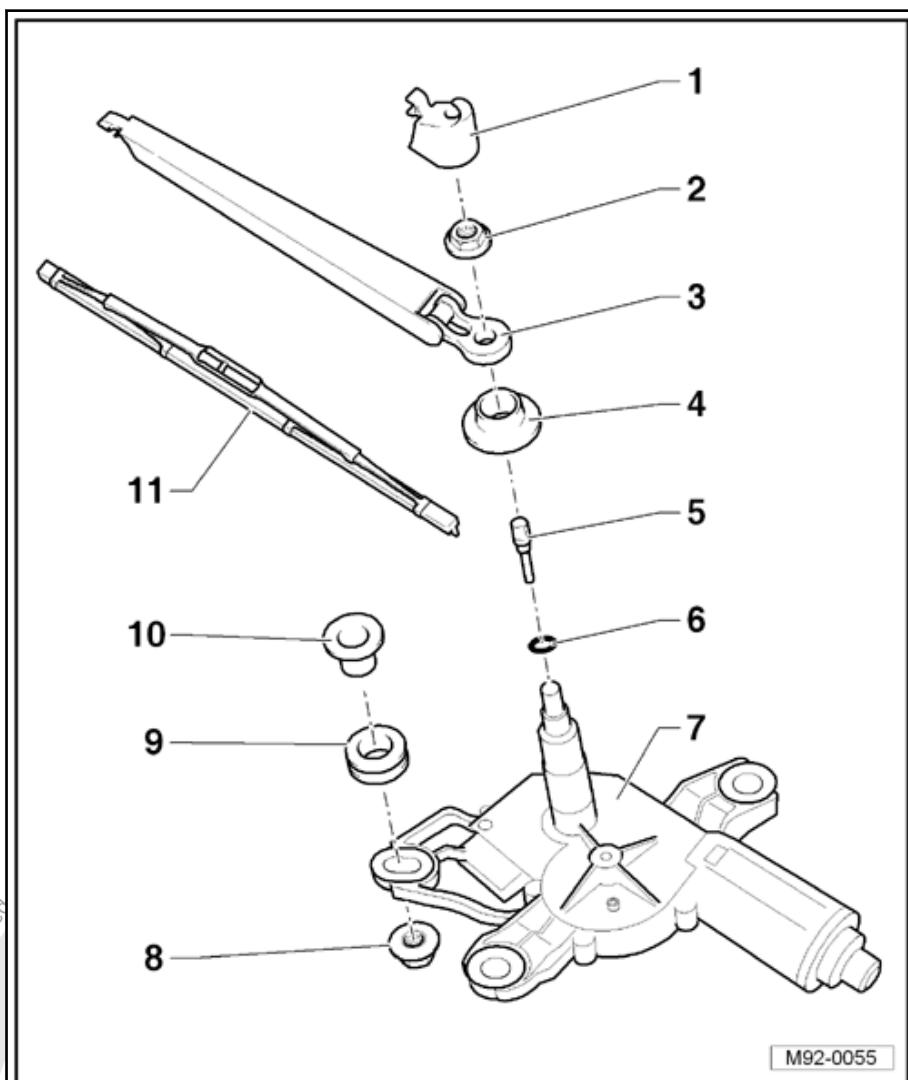
- 8 Nm

9 - Rubber Ring

10 - Spacer

11 - Wiper Blade

- Remove and install the joint-free wiper blades, refer to [W4.14 Rear Window Wiper Blade](#), page 104.



## 2.4 Rear Window Washer System Component Location



### 1 - Connecting Piece

- Connection to washer nozzle of rear window washer system
- Overview of washer fluid hose couplings. Refer to [⇒ R1.3 epairing", page 76](#).

### 2 - Connecting Piece

- Separating point between wiring harness of passenger compartment to wiring harness of rear lid
- Overview of washer fluid hose couplings. Refer to [⇒ R1.3 epairing", page 76](#).

### 3 - Washer Nozzle of Rear Window Washer System

- Removing and installing. Refer to [⇒ W4.15 indow Washer Spray Nozzle", page 105](#).
- Aiming. Refer to Maintenance Manual.

### 4 - Windshield and Headlamp Washer Fluid Reservoir Filler Tube

- Removing and installing. Refer to [⇒ T4.6.1 ube", page 96](#).

### 5 - Windshield Washer System and Headlamp Washer System Washer Fluid Reservoir

- Removing and installing. Refer to [⇒ W4.6 asher Fluid Reservoir", page 95](#).

### 6 - Windshield and Rear Window Washer Pump -V59-

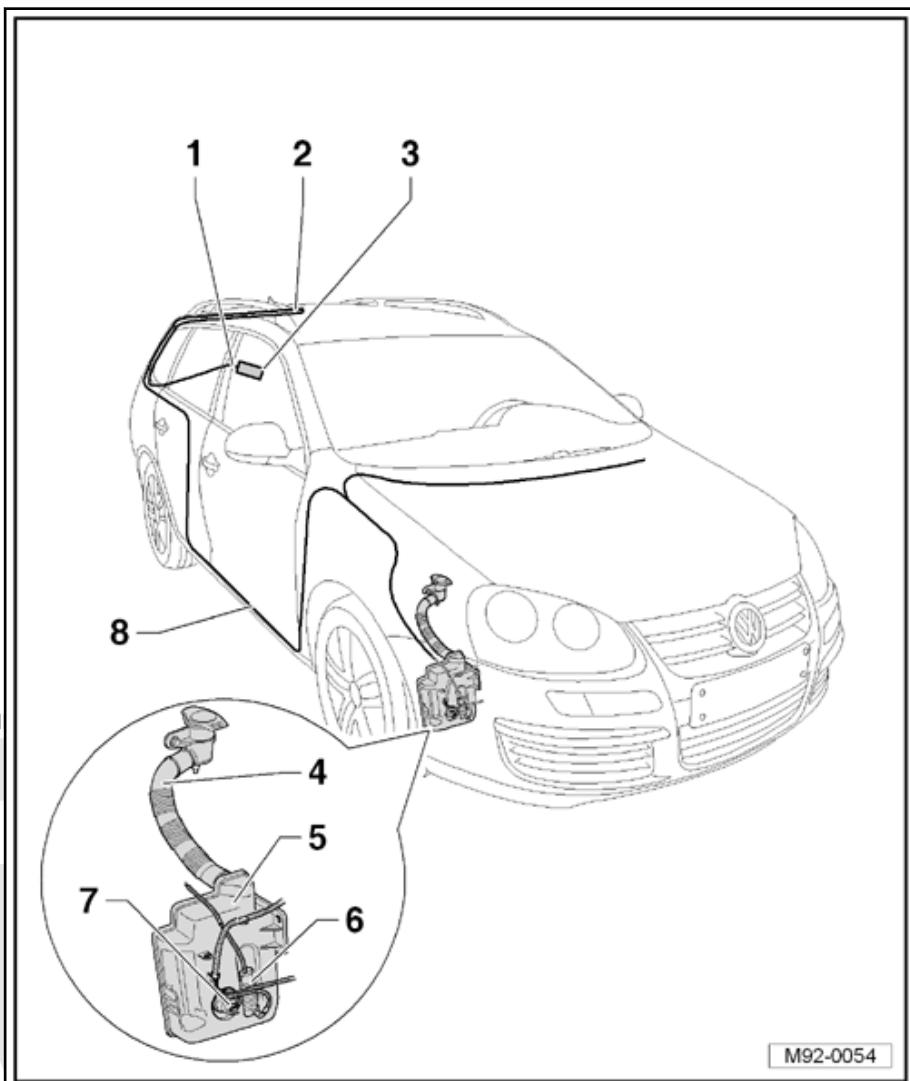
- Removing and installing. Refer to [⇒ W4.7 indshield and Rear Window Washer PumpV59 ", page 98](#).

### 7 - Windshield Washer Fluid Level Sensor -G33-

- Removing and installing. Refer to [⇒ W4.8 indshield Washer Fluid Level SensorG33 ", page 99](#).

### 8 - Hose

- Hose repair. Refer to [⇒ R1.3 epairing", page 76](#).



## 2.5 Headlamp Washer System Overview

For every fifth activation of windshield washer system, headlamps are also washed if windshield wiper lever is pulled toward steering wheel for at least 1.5 seconds - as long as low beam or high beam headlamps are switched on.

The spraying time of the headlamp washer system can be set from 0 to 12.75 seconds. It is set via the Vehicle Electrical System Control Module -J519-. Refer to [⇒ V5.5 ehicle Electrical System Control ModuleJ519 ", page 439](#).



After assembly work or when first operating headlamp cleaning system, it must be ventilated to ensure proper function of lift cylinders and spray nozzles .

Additional information:

- ◆ Refer to Wiring diagrams, Troubleshooting & Component locations.
- ◆ Refer to Owner's Manual.

#### DTC recognition and display

The Vehicle Electrical System Control Module -J519- is equipped with OBD.

Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.





### 1 - Spray Nozzle Holder with Spray Nozzle, Right

- Spray Nozzle Holder, Removal and Installation, refer to [W4.18 ash System Spray Nozzle Holder](#), page 107
- Spray Nozzles, Adjusting. Refer to Maintenance Manual.
- Spray Jet Telescopic Cylinder, Removal and Installation, refer to [W4.17 ash System Lift Cylinder](#), page 106

### 2 - Spray Nozzle Holder with Spray Nozzle, Left

- Spray Nozzle Holder, Removal and Installation, refer to [W4.18 ash System Spray Nozzle Holder](#), page 107
- Spray Nozzles, Adjusting. Refer to Maintenance Manual.
- Spray Jet Telescopic Cylinder, Removal and Installation, refer to [W4.17 ash System Lift Cylinder](#), page 106

### 3 - Angle Coupling

- Connection on left spray jet telescopic cylinder
- Overview of washer fluid hose couplings. Refer to [R1.3 epairing](#), page 76 .

### 4 - Hose

### 5 - Angle Coupling

- Connection on the right spray jet telescopic cylinder
- Washer fluid line distribution to the spray jets
- Overview of washer fluid hose couplings. Refer to [R1.3 epairing](#), page 76 .

### 6 - T-connection

- Washer fluid line distribution to the spray jets

### 7 - Angle Coupling

### 8 - Headlamp Washer Pump -V11-

- Removing and installing. Refer to [H4.16 eadlamp Washer PumpV11](#) , page 105 .

### 9 - Windshield Washer System and Headlamp Washer System Washer Fluid Reservoir

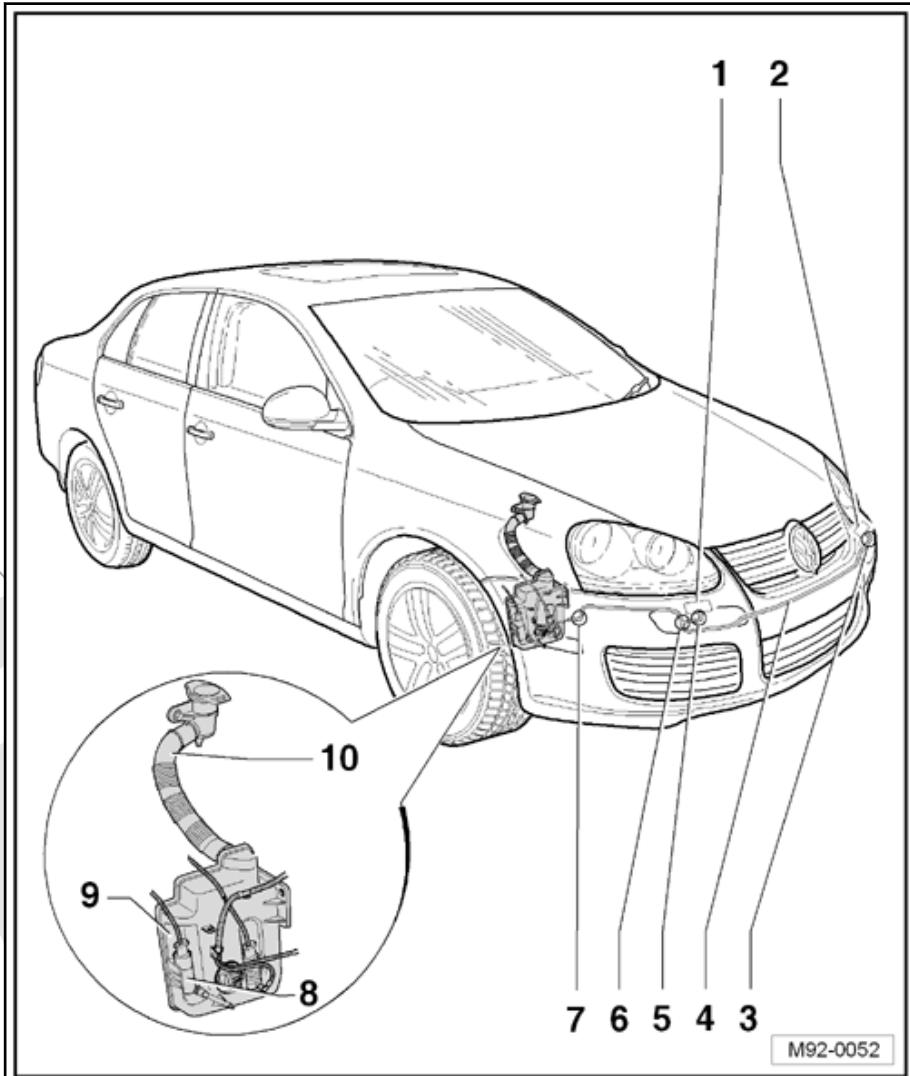
- Removing and installing. Refer to [W4.6 ash Fluid Reservoir](#), page 95 .

### 10 - Windshield and Headlamp Washer Fluid Reservoir Filler Tube

- Removing and installing. Refer to [T4.6.1 ube](#), page 96 .

### No illustration

Lift cylinder for spray jets to front bumper cover: 4.5 Nm





### 3 Specifications

⇒ [T3.1 Tightening Specifications", page 84](#)

#### 3.1 Fastener Tightening Specifications

Component	Fastener Size	Nm
Windshield Wiper Arm Attaching Nut	-	20
Windshield Wiper Frame to Body <sup>1</sup>	-	5
Windshield Wiper Frame to Body <sup>2</sup>	-	8
Windshield Wiper Motor to Wiper Frame Bolts	-	8
Windshield Wiper Motor Crank to Windshield Wiper Motor Shaft	-	18
Windshield/Headlamp Washer Fluid Reservoir to the Body	-	8

- <sup>1</sup> For bolt tightening clarification, refer to ⇒ [W2.1asher System Overview", page 77](#) and see item -4-
- <sup>2</sup> For bolt tightening clarification, refer to ⇒ [W2.1asher System Overview", page 77](#) and see item -5-



## 4 Removal and Installation

- ⇒ [W4.1 Wiper Arms", page 85](#)
- ⇒ [W4.2 Windshield Wiper MotorV ", page 87](#)
- ⇒ [W4.3 Wiper Blades, Adjusting Park Position", page 89](#)
- ⇒ [W4.4 Wiper Blades", page 90](#)
- ⇒ [R4.5 Rain/Light Recognition SensorG397 ", page 91](#)
- ⇒ [W4.6 Washer Fluid Reservoir", page 95](#)
- ⇒ [W4.7 Windshield and Rear Window Washer PumpV59 ", page 98](#)
- ⇒ [W4.8 Windshield Washer Fluid Level SensorG33 ", page 99](#)
- ⇒ [S4.9 Spray Nozzles", page 100](#)
- ⇒ [S4.10 Spray Nozzles, Adjusting", page 101](#)
- ⇒ [W4.11 Wiper Arm", page 101](#)
- ⇒ [R4.12 Rear Window Wiper MotorV12 ", page 102](#)
- ⇒ [W4.13 Window Wiper Blade Park Position, Adjusting", page 103](#)
- ⇒ [W4.14 Window Wiper Blade", page 104](#)
- ⇒ [W4.15 Window Washer Spray Nozzle", page 105](#)
- ⇒ [H4.16 Headlamp Washer PumpV11 ", page 105](#)
- ⇒ [W4.17 Washer System Lift Cylinder", page 106](#)
- ⇒ [W4.18 Washer System Spray Nozzle Holder", page 107](#)
- ⇒ [W4.19 Washer System, Bleeding", page 108](#)

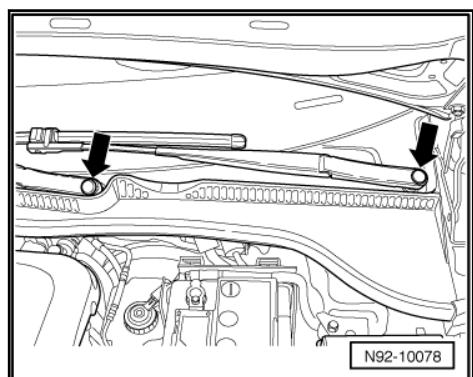
### 4.1 Windshield Wiper Arms

#### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-
- ◆ Pry Lever -80-200-
- ◆ Puller - Wiper Arm Kit -T10369-

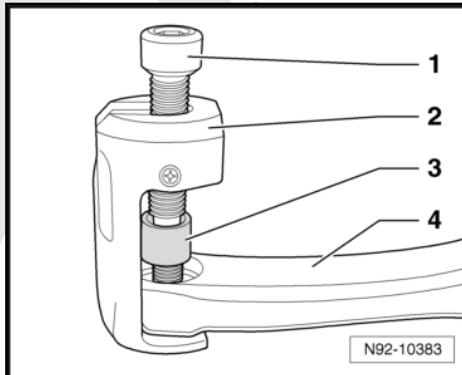
#### Removing

- Deactivate the APP function. Refer to ⇒ [W1.1 Wiper Motor Control ModuleJ400, Deactivating APP", page 75](#).
- Let the wiper return to its park position and then turn off the ignition.
- Pry out the caps -arrow- with a screwdriver.





- remove the underlying nuts -arrows-.
- Slide the Puller - Wiper Arm Kit - Puller 1 -T10369/1- -2- arm under the wiper arm -4-.



#### Caution

*The windshield wiper shaft can be damaged.*

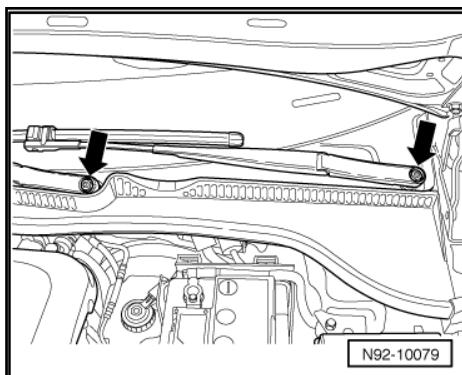
*Always use the thrust piece -3- to loosen the windshield wiper arm.*

- Turn the pressure bolt -1- on the Puller - Wiper Arm Kit - Puller 1 -T10369/1- clockwise until the thrust piece-3- makes contact with the wiper shaft. Turn the pressure bolt -1- on the Puller - Wiper Arm Kit - Puller 1 -T10369/1- clockwise with a hex socket wrench until the wiper arm -4- comes loose off the shaft.
- Remove the Puller - Wiper Arm Kit - Puller 1 -T10369/1- and the wiper arm.

#### Installing

Tighten the wiper arm mounting nuts to the specification only after setting the wiper blade park position.

- Deactivate the APP function. Refer to [W1.1 Wiper Motor Control Module J400, Deactivating APP](#), page 75 .
- Turn on the ignition and then switch the windshield on and off so that the Windshield Wiper Motor -V- goes into its park position.
- Mount both wiper arms on the wiper arm shafts and tighten the nuts -arrows- hand-tight.



- Adjust windshield wiper blade park position [W4.3 Wiper Blades, Adjusting Park Position](#), page 89 .



- Install the cover and the trim.

## 4.2 Windshield Wiper Motor -V-

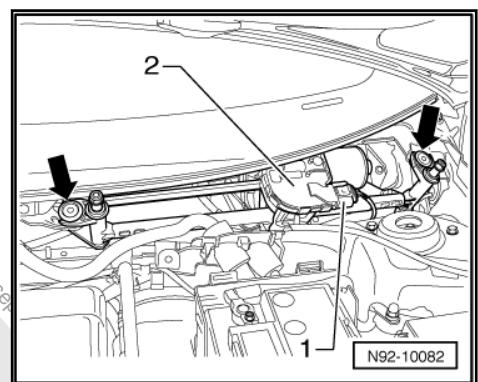
[⇒ F4.2.1 Frame with Linkage and Windshield Wiper MotorV ", page 87](#)

[⇒ W4.2.2 Windshield Wiper MotorV ", page 87](#)

### 4.2.1 Wiper Frame with Linkage and Windshield Wiper Motor -V-

#### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove the windshield wiper arms. Refer to [⇒ W4.1 Wiper Arms", page 85](#).
- Remove the plenum chamber cover. Refer to ⇒ Body Exterior; Rep. Gr. 64; Removal and Installation.
- Remove the plenum chamber bulkhead. Refer to ⇒ Body Exterior; Rep. Gr. 50; Description and Operation.
- Disengage the connector -1- and disconnect.



- Remove the bolts -arrows- and remove the wiper frame -2- from the vehicle.

#### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to [⇒ W2.1 Wiper System Overview", page 77](#).

## 4.2.2 Windshield Wiper Motor -V-

#### General Information

The Wiper Motor Control Module -J400- is integrated with the Windshield Wiper Motor -V-.

#### DTC recognition and display

The Vehicle Electrical System Control Module -J519- is equipped with OBD.

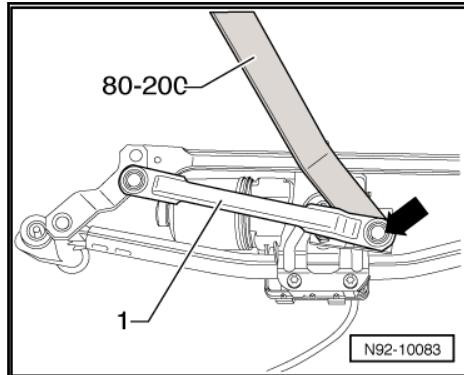
Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.

#### Removing

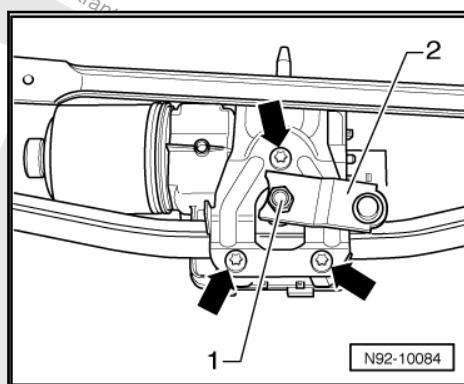
- Turn off the ignition and all electrical consumers and remove the ignition key.



- Remove the wiper frame together with the linkage rod, refer to [F4.2.1 Frame with Linkage and Windshield Wiper MotorV](#), page 87 .
- Pry off ball head -arrow- of linkage -1- from motor crank using Pry Lever -80-200-.



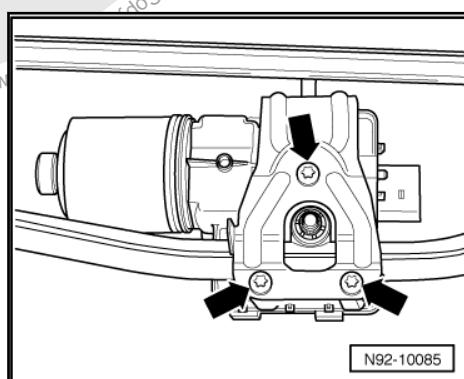
- Remove the nut -1-.



- Remove the motor crank -2- from the Windshield Wiper Motor shaft.
- Remove the mounting bolts -arrows- and remove the Windshield Wiper Motor -V- with the Windshield Wiper Motor control module -J400- from the wiper frame.

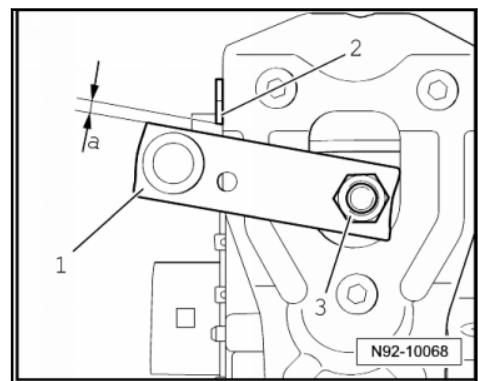
#### Installing

- Install the Windshield Wiper Motor -V- with the Windshield Wiper Motor control module -J400- in the wiper frame and tighten the bolts -arrows-.

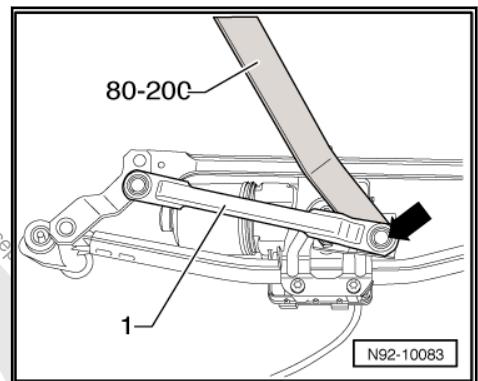


- Mount the motor crank -1- on the Windshield Wiper Motor -V- shaft.

Distance -a- to stop -2- must be  $3 \pm 1$  mm.



- Tighten the motor crank and the Windshield Wiper Motor -V- shaft with the nut -3-.
- Tighten the threaded connections to the tightening specifications. Refer to [W2.1 wiper System Overview](#), page 77 .
- Push the ball head -arrow- on the linkage -1- onto the motor crank.



### 4.3 Windshield Wiper Blades, Adjusting Park Position

#### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-



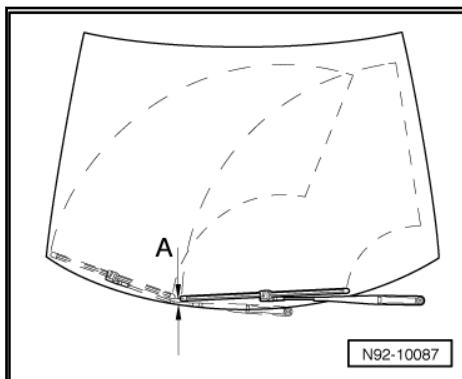
*Wiper blades are arranged symmetrically for RHD vehicles.*

#### Procedure

- Deactivate the APP function. Refer to [W1.1 wiper Motor Control Module J400, Deactivating APP](#), page 75 .
- Let the wiper return to its park position and then turn off the ignition.
- Adjust the wiper blade park position.



#### Driver side



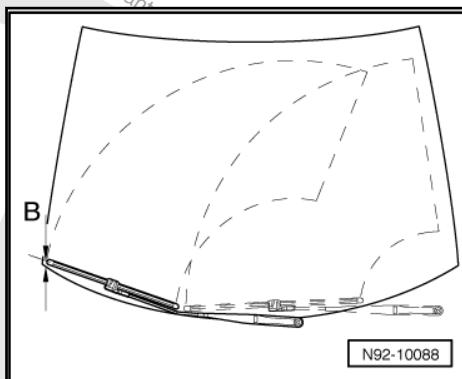
Distance -A- between tips of wiper lips and upper edge of plenum chamber cover must be 10 mm.

- If necessary, adjust the windshield wiper blade park position by repositioning the wiper arm.

Wiper arms. Removing [⇒ W4.1 Wiper Arms](#), page 85 .

- Tighten the threaded connection to the tightening specification. Refer to [⇒ W2.1 Washer System Overview](#), page 77 .

#### Passenger side



Distance -B- between tips of wiper lips and upper edge of plenum chamber cover must be 10 mm.

- If necessary, adjust the windshield wiper blade park position by repositioning the wiper arm.

Wiper arms. Removing [⇒ W4.1 Wiper Arms](#), page 85 .

- Tighten the threaded connection to the tightening specification. Refer to [⇒ W2.1 Washer System Overview](#), page 77 .

## 4.4 Windshield Wiper Blades

Right and left wiper blades may not be interchanged during installation.

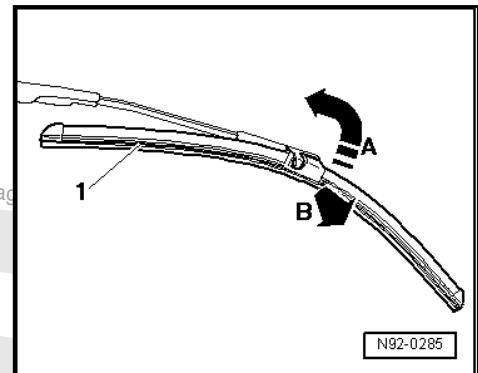
Joint-free wiper blades are very flexible. Grasp the wiper blades in the area for the wiper blade mount only and lift them away from the windshield.

To remove wiper blades, wiper arms must be driven into "service/winter position". The "service/winter position" is activated by operating windshield wiper lever in "one-touch wiping" position within 10 seconds after switching off ignition.



## Removing

- Move wiper arms into "service/winter position" by moving windshield wiper lever into "one-touch wiping" position within 10 seconds after switching off ignition.
- Fold the wiper arm up.
- Tilt the wiper blade -1- on wiper arm all the way -arrow A-.



- Remove the wiper blade -1- from the wiper arm axle -arrow B-.

## Installing

- Push the wiper blade onto the wiper arm axle.
- Turn the wiper blade all the way on the wiper arm axle.
- Carefully fold the wiper arm back onto the windshield.

## 4.5 Rain/Light Recognition Sensor -G397-

The Rain/Light Recognition Sensor -G397- can be installed again if it is not damaged when removing it from the retaining plate on the windshield (for example when replacing the windshield). If the windshield is cracked in the area near the Rain/Light Recognition Sensor -G397- then the Rain/Light Recognition Sensor -G397- cannot be used again.

Ensure that the removed Rain/Light Recognition Sensor -G397- is stored in a dust-free area and that the silicone connecting pads are not dirty.

If a Rain/Light Recognition Sensor -G397- is replaced with a Rain/Light Recognition Sensor -G397- with a different part number, the new Rain/Light Recognition Sensor -G397- must be coded; refer to [⇒ page 448](#).

The Rain/Light Recognition Sensors -G397- cannot be optionally installed. For the correct Rain/Light Recognition Sensor -G397-. Refer to the Parts Catalog.

- ◆ Rain/Light Recognition Sensor -G397-, Servicing, TRW [⇒ page 94](#).



### Caution

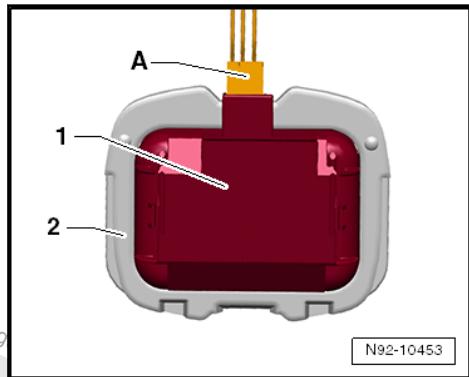
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

## Removing

- Remove the interior rearview mirror. Refer to ⇒ Body interior; Rep. Gr. 68; Removal and Installation.



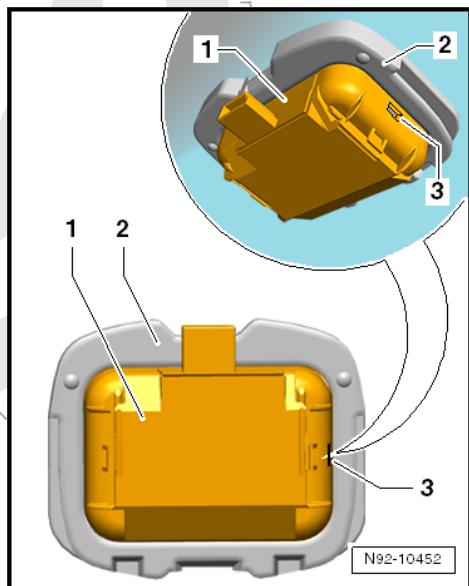
- Disconnect the connector -A- from the Rain/Light Recognition Sensor -G397- -1-.



**Note**

*Not every Rain/Light Recognition Sensor -G397- has three cut-outs. If the 3rd cut-out is not there, pry it out at a different location.*

- Pry the Rain/Light Recognition Sensor -G397- -1-with a suitable screwdriver at the cut-out -3- from the retaining plate -2-.



While removing, the complete Rain/Light Recognition Sensor -G397- and not only the upper shell of the Rain/Light Recognition Sensor -G397- must be pried off.

### Installing

Install in reverse order of removal. Note the following:



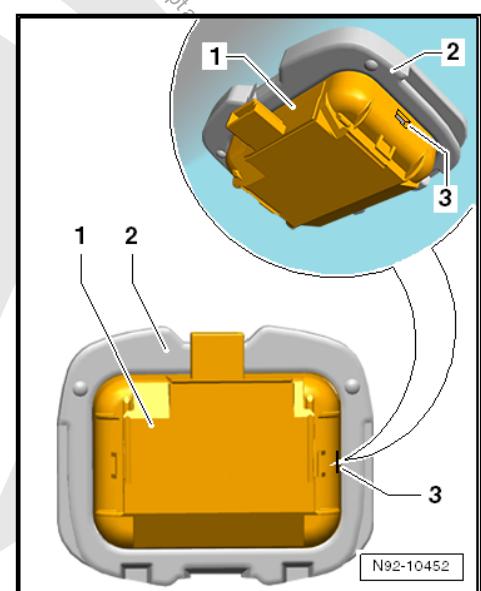
### Caution

- ◆ Always clean the windshield surface inside the Rain/Light Recognition Sensor -G397- bracket before installing. Remove any traces of the connecting pad still remaining on the windshield.
- ◆ Surface (connecting pads) of Rain/Light Recognition Sensor -G397- must not be soiled or damaged when installing. Replace the Rain/Light Recognition Sensor -G397- if the connecting pad is damaged.

Surface (connecting pads) of Rain/Light Recognition Sensor -G397- must not be soiled when installing.

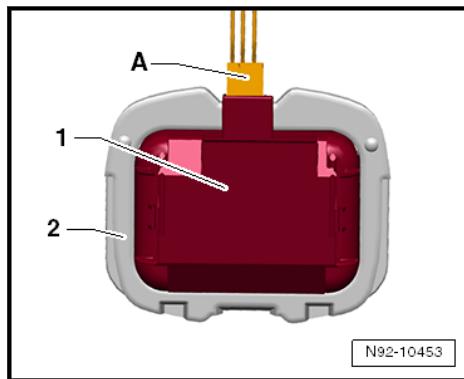
If the surface (connecting pads) of the Rain/Light Recognition Sensor -G397- is soiled, it can be potentially cleaned by "applying" and then "pulling off" one or more adhesive strips.

- Clean the windshield thoroughly around the retaining plate with isopropyl alcohol. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Remove the cap from the new Rain/Light Recognition Sensor -G397-.
- Install the Rain/Light Recognition Sensor -G397- -1- into the plate in the windshield -2- and then press firmly on it.



Approximately 10 minutes after installing, there must be no air bubbles between windshield and connecting pads of Rain/Light Recognition Sensor -G397-.

- Connect the connector -A- and install the harness cover to secure the Rain/Light Recognition Sensor -G397- -1-.



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- Install the interior rearview mirror. Refer to ⇒ Body interior; Rep. Gr. 68; Removal and Installation.
- For coding the Rain/Light Recognition Sensor -G397-. Refer to ⇒ [R5.5.23 Rain/Light Recognition Sensor G397, Coding](#), page 448 .

#### Rain/Light Recognition Sensor -G397-, Manufacturer TRW, Servicing

Only TRW can replace the housing and optical unit if the optical unit (coupling cushion) is damaged.

A replacement rain sensor housing and optical unit are always delivered with mounting clips. Remove these clips if they are not needed.

#### Procedure

- Remove the Rain/Light Recognition Sensor -G397-. Refer to ⇒ [R4.5 Rain/Light Recognition Sensor G397](#) , page 91 .



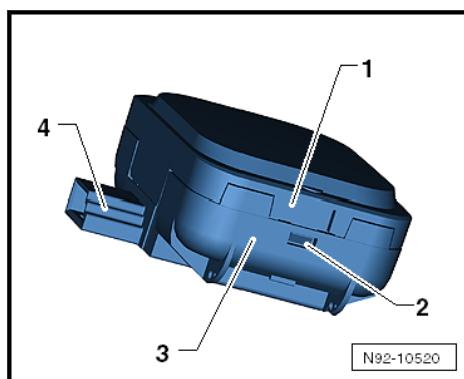
#### Caution

*The rain sensor electronics may be damaged.*

*Be careful not to insert the screwdriver all the way through the housing up to the rain sensor electronics.*

*Do not touch the rain sensor electronics.*

- Press the tab -2- on both sides and separate the upper section -1- from the lower section -3-



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- Remove the rain sensor electronics -4- from the old lower section and install the new electronics the exact same way.

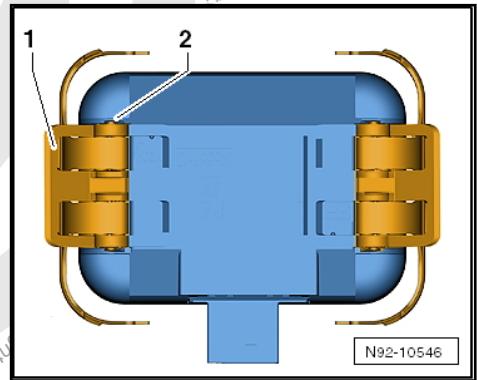


### Caution

***Do not touch the optical unit.***

***Remove the protective cover just before installing the Rain/Light Recognition Sensor -G397-.***

- Assemble the new upper section with optical unit and protective cover and the lower section.
- Pry the clip and bracket -1- out of the rain sensor housing -2- with a screwdriver.



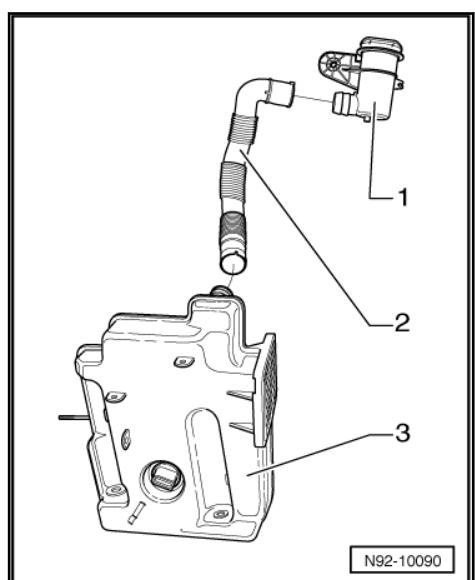
- Install the Rain/Light Recognition Sensor -G397-. Refer to [R4.5 Rain/Light Recognition Sensor G397](#), page 91 .
- For coding the Rain/Light Recognition Sensor -G397-. Refer to [R5.5.23 Rain/Light Recognition Sensor G397, Coding](#), page 448 .

## 4.6 Windshield Washer Fluid Reservoir

[⇒ T4.6.1 Installation](#), page 96

[⇒ 4.6.2 Removal](#), page 97

Tank for windshield washer system and headlamp cleaning system is in three parts. The individual components are connected. In order to guarantee the correct position of the parts with respect to each other, make sure that the guides present on the individual components engage in each other during assembly.





- 1 - Removing and installing the filler tube, refer to [T4.6.1 ube](#), page 96
- 2 - Filler tube connecting tube to reservoir. The connecting tube, the windshield washer fluid reservoir and the head-lamp washer system are removed. Refer to [4.6.2](#), page 97
- 3 - Tank for windshield washer system and headlamp cleaning system, removing and installing [4.6.2](#), page 97

#### 4.6.1 Filler Tube

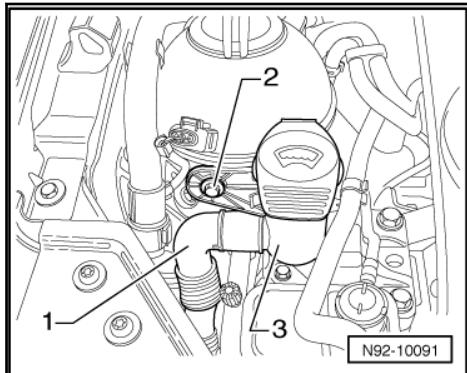


##### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

##### Removing

- Remove the connecting pipe -1- from the reservoir filler tube -3-.

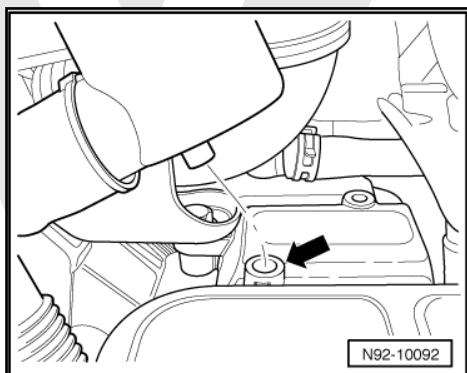


- Remove the bolt -2-.
- Unclip the hose bracket from the filler tube -3- and remove it from the vehicle.

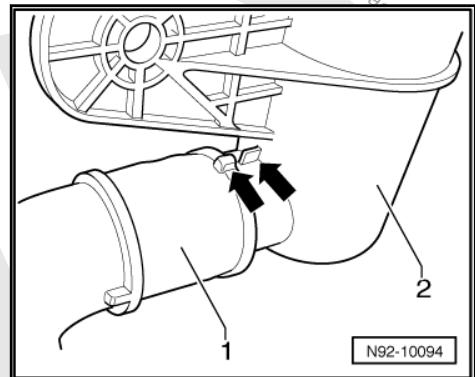
##### Installing

Install in reverse order of removal. Note the following:

The casting mark on the bottom side of the filler tube must be inserted into the hole -arrow-.



Connecting tube -1- and filler tube -2- must be joined so that the guides -arrows- engage in each other.



- Tighten the screw to 4 Nm.

#### 4.6.2 Reservoir



##### Caution

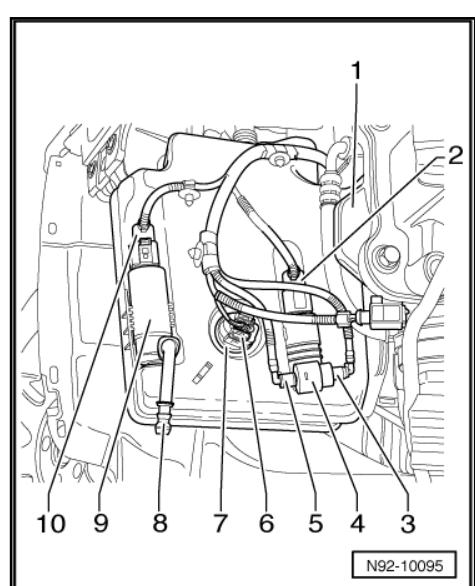
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

##### Removing

- Remove the filler tube. Refer to ⇒ T4.6.1 tube, page 96 .
- Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Removal and Installation.

To avoid interchanging the washer fluid line connections on the Windshield and Rear Window Washer Pump -V59-, the connections on the pump and hose lines are color-coded. Hose connector pieces must be connected to the corresponding colored pump connections during installation.

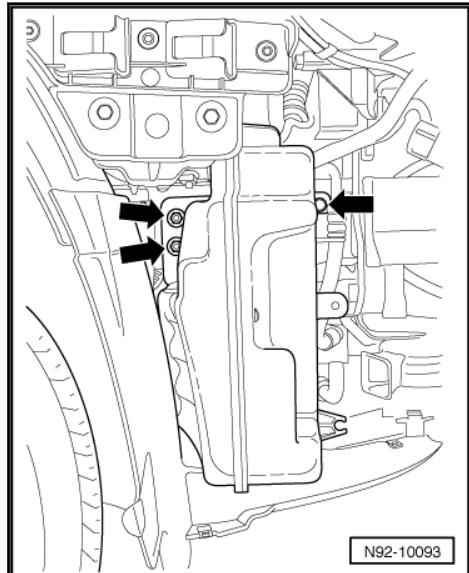
- Turn the clip on the hose connection -3- and -5- to open it and then remove the Windshield and Rear Window Washer Pump -V59- -4-.



- Catch any draining washer fluid in a suitable container.
- Disconnect the connector -6- from the Windshield Washer Fluid Level Sensor -G33- -7-.



- Pull the Windshield and Rear Window Washer Pump -V59-  
-4- out of the container and disconnect the connector -2-.
- Pull the Headlamp Washer Pump -V11- -9- out of the container and disconnect the connector -10-.
- Remove the bolts -arrows- from the container and then remove the container from the vehicle.



## Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specifications. Refer to [W2.2 ashler System Component Location](#), page 78 .
- Bleed the headlamp washer system after conclusion of the assembly steps [W4.19 ashler System, Bleeding](#), page 108 .

## 4.7 Windshield and Rear Window Washer Pump -V59-



### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

## Removing

### Golf Variant Only (AJ5)

- Remove the right grille from the front bumper cover. Refer to [Body Exterior; Rep. Gr. 63; Removal and Installation](#).

### All Other Vehicles

- Remove the front bumper cover. Refer to [Body Exterior; Rep. Gr. 63; Removal and Installation](#).

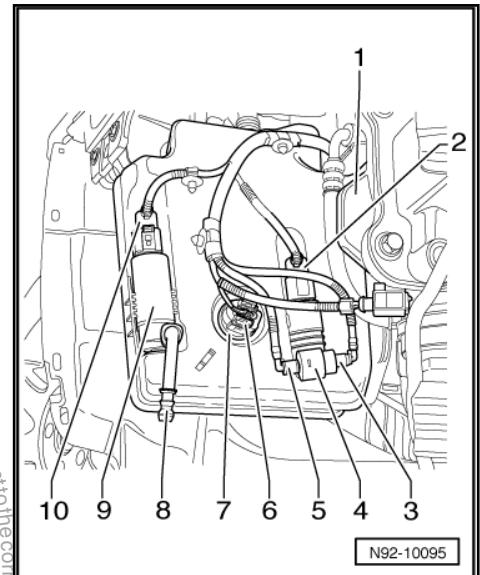
### All Vehicles:

To avoid interchanging the washer fluid line connections on the Windshield and Rear Window Washer Pump -V59-, the connections on the pump and hose lines are color-coded. Hose con-



ector pieces must be connected to the corresponding colored pump connections during installation.

- Turn the clip on the hose connection -3- and -5- to open it and then remove the Windshield and Rear Window Washer Pump -V59- -4-.



- Catch any draining washer fluid in a suitable container.
- Pull the Windshield and Rear Window Washer Pump -V59- -4- out of the reservoir.
- Disengage the connector -2- and disconnect.

#### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specifications. Refer to [W2.2 washer System Component Location](#), [page 78](#).
- Bleed the headlamp washer system after conclusion of the assembly steps [W4.19 washer System: Bleeding](#), [page 108](#).

## 4.8 Windshield Washer Fluid Level Sensor -G33-



#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

#### Removing

##### Only the Golf Wagon AJ5:

- Remove the right air grille from the front bumper. Refer to [Body Exterior; Rep. Gr. 63; Removing and Installing](#).

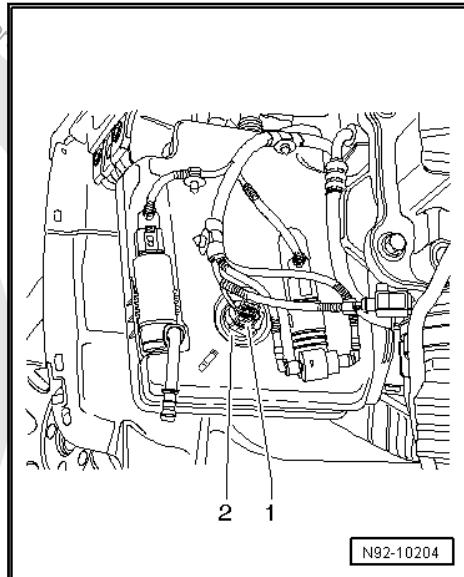
##### All other Vehicles:

- Remove the front bumper cover. Refer to [Body Exterior; Rep. Gr. 63; Removal and Installation](#).



#### All Vehicles:

- Disconnect the connector -1- from the Windshield Washer Fluid Level Sensor -G33- -2-.



- Pull the Windshield Washer Fluid Level Sensor -G33- -2- out of the rubber seal.
- Catch any draining washer fluid in a suitable container.

#### Installing

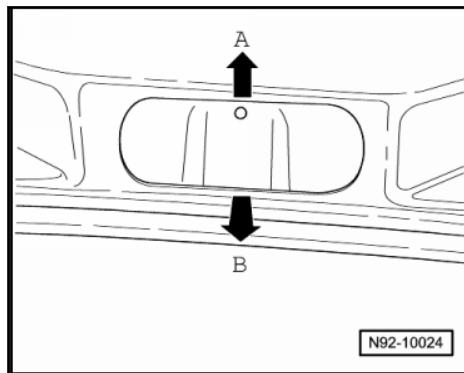
Install in reverse order of removal. Note the following:

- Bleed the headlamp washer system after conclusion of the assembly steps [⇒ W4.19asher System, Bleeding”, page 108](#).

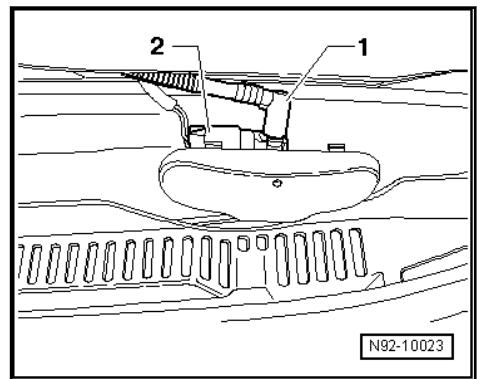
## 4.9 Windshield Spray Nozzles

#### Removing

- Push the spray nozzle upward -arrow A- and remove it from the flap -arrow B-.



- Pull the hose -1- off the spray nozzle and disconnect the connector -2-.



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### Installing

- Connect the connector -2- and attach the hose -1-.
- Slide spray nozzle into installation opening until it engages audibly.
- Spray Nozzles, Adjusting. Refer to Maintenance Manual.

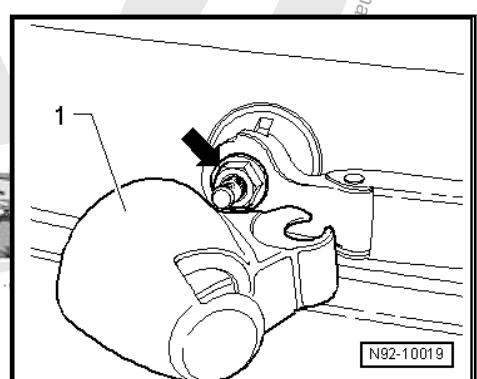
## 4.10 Windshield Spray Nozzles, Adjusting

Remove the spray nozzles if the spraying field is uneven due to dirt in the nozzle, and flush the nozzle out in the opposite direction of the spray. It is permissible to further blow through in opposite direction of spray with compressed air. Do not clean the spray nozzles using any objects. Refer to Maintenance Manual.

## 4.11 Windshield Wiper Arm

### Removing

- Turn on the ignition and then operate the rear window wiper.
- Turn off the ignition and all electrical consumers and remove the ignition key.
- Fold up the cap -1- on the rear window wiper and unclip it.
- Loosen the nut -arrow- but do not remove it all of the way.



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### Note

Joint-free wiper blades are very flexible. Hold the wiper blade only in the area near the wiper blade retainer in order to remove it from the rear window.

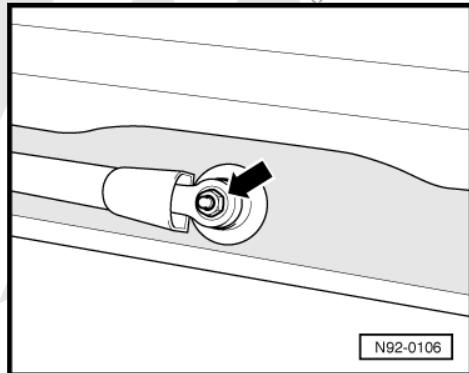
- Fold wiper arm up and loosen from the cone by sideways motions.



- Remove the nut -arrow- and the wiper arm.

### Installing

- Turn on the ignition and operate the rear window wiper to move the Rear Window Wiper Motor -V12- into the park position.
- Install the wiper arm on the wiper arm shaft in its end position and tighten the nut -arrow- hand-tight.



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- Adjust the rear window wiper park position. Refer to [W4.13 Window Wiper Blade Park Position, Adjusting](#), page 103 .

## 4.12 Rear Window Wiper Motor -V12-



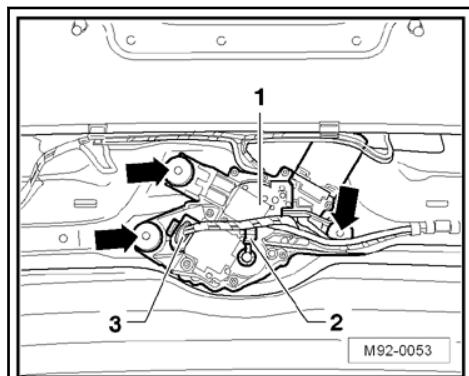
### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [D5.1 Disconnecting and Connecting](#), page 16 .*

### Removing

Remove the wiper arm before removing the Rear Window Wiper Motor -V12-.

- Disconnecting the Battery -A-. Refer to [D5.1.1 Disconnecting](#) .
- Remove the lower trim for the rear lid. Refer to [Body Interior; Rep. Gr. 70; Removal and Installation](#).
- Disengage the connector -3- and disconnect.



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- Pull the hose connection locking ring -2- to open it and then remove the hose from the connection on the Ignition Coil Puller -V12- -1-.



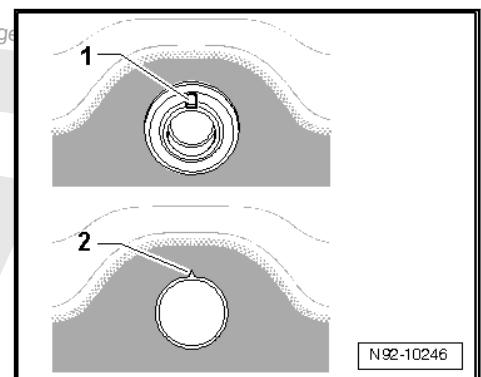
- Remove the nuts -arrows-.
- Remove the Rear Window Wiper Motor -V12- from the rear lid carefully.

### Installing

Install in reverse order of removal. Note the following:

- Before installing the Rear Window Wiper Motor -V12-, coat the inner side of the seal in the rear window with rubber- and plastic-compatible lubricant (e.g. polyethylene glycol).
- Make sure the seal fits correctly in the rear window opening.

Marking -1- of seal must align with marking -2- on rear window.



- Connecting the Battery A-. Refer to [C5.1.2 connecting](#), page 17 .
- Tighten the threaded connections to the tightening specifications.

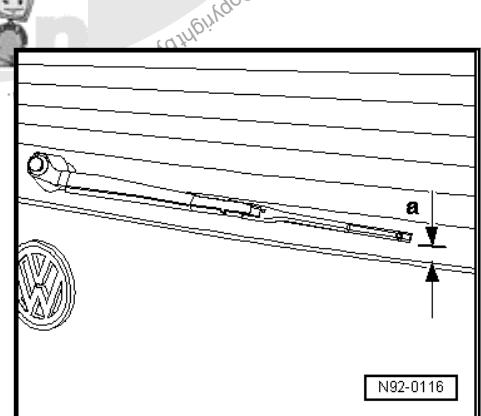
## 4.13 Rear Window Wiper Blade Park Position, Adjusting

### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-

### Procedure

The distance -a- between wiper blade and lower edge of windshield must be 15 + 5 mm.



- If necessary, adjust the rear window wiper park position by repositioning the wiper arm.
- Tighten the threaded connections to the tightening specifications. Refer to [W2.3 Window Washer System Overview](#), page 79 .



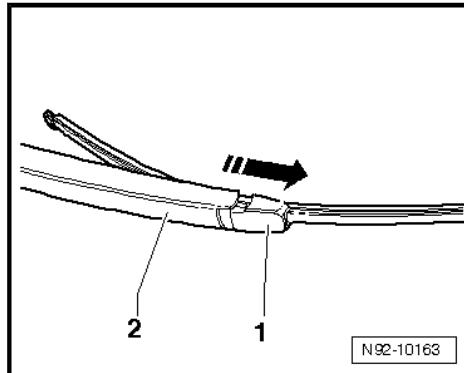
## 4.14 Rear Window Wiper Blade



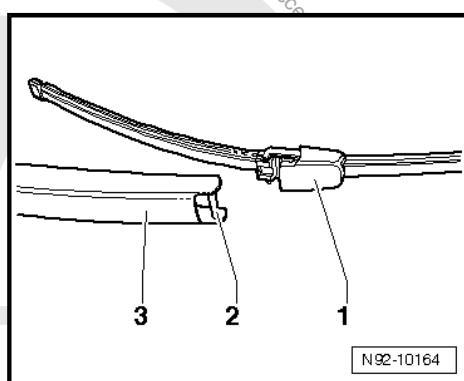
*Joint-free wiper blades are very flexible. Hold the wiper blade only in the area near the wiper blade retainer in order to remove it from the rear window.*

### Removing

- Fold the wiper arm -2- down from the glass.

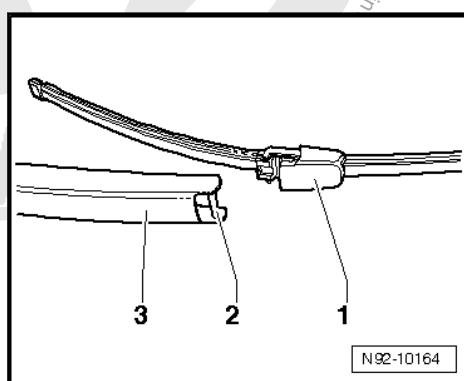


- Remove the wiper blade fastener -1- from the wiper arm -2- G.Volkswagen AG does not guarantee or accept responsibility for any damage resulting from failure to observe the instructions contained in this document. Copying for internal or commercial purposes, in part or in whole, is not permitted unless authorised by Volkswagen AG.
- Remove the wiper blade fastener -1- from the wiper arm axle -2-.



### Installing

- Place the wiper blade fastener -1- on the wiper arm -3- axle -2-.





- Push the wiper blade fastener all the way onto the wiper arm until it locks in place.
- Carefully fold the wiper arm back onto the rear window.

## 4.15 Rear Window Washer Spray Nozzle

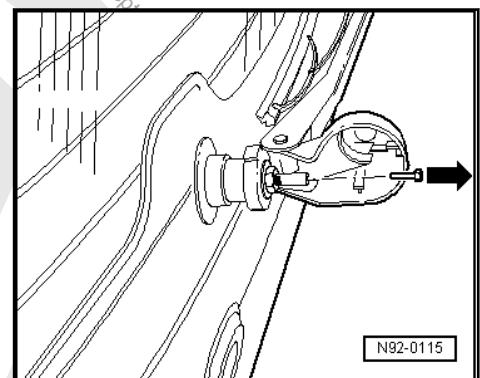


### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

### Removing

- Move the wiper into park position.
- Flip up the rear window wiper cap.



- Remove the spray nozzle from the wiper arm shaft with pliers -arrow-.

### Installing

- Push the spray nozzle all the way into the wiper arm shaft with the spray opening facing up.
- Adjust the spray nozzle. Refer to Maintenance Manual.

## 4.16 Headlamp Washer Pump -V11-

Headlamp Washer Pump -V11- is installed at tank for wind-shield washing system and headlamp cleaning system in right wheel housing.

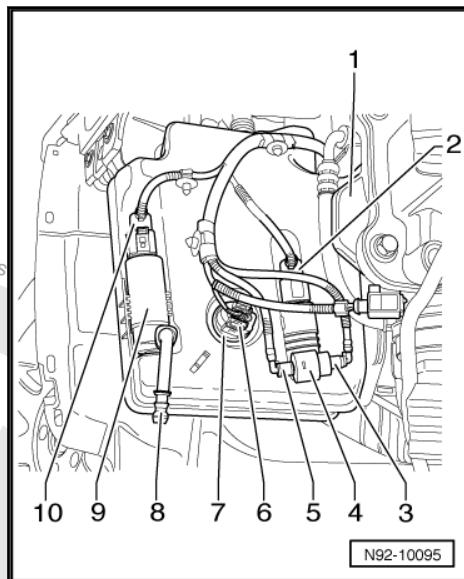


### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

### Removing

- Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Removal and Installation.
- Pull the Headlamp Washer Pump -V11- -9- upward and out of the container -1-.



- Release and disconnect the connector -10- from the Head-lamp Washer Pump -V11-.
- To disassemble the connecting tube -8-, pull the securing clip at the connection and pull the connecting tube -8- from the Headlamp Washer Pump -V11-.

#### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specifications. Refer to [W2.5asher System Overview](#), page 81 .
- Bleed the headlamp washer system after conclusion of the assembly steps. Refer to [W4.19asher System, Bleeding](#), page 108 .

#### 4.17 Headlamp Washer System Lift Cylinder

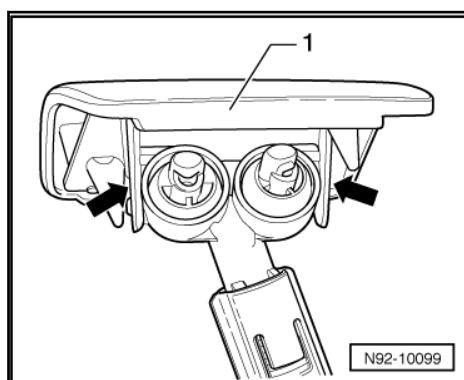


##### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

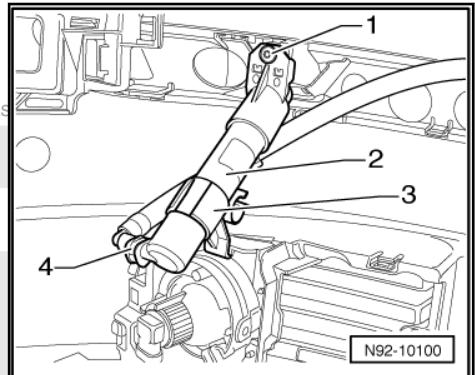
#### Removing

- Remove the spray nozzles with the cap -1- from the bumper cover to the stop.





- Remove the cap -1- from the mountings -arrows- on the spray nozzle holder.
- Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Removal and Installation.
- Remove the clip -4- from the hose connection.



- Remove the hose connection from the lift cylinder -2-.
- Remove the bolt -1-.
- Remove the lift cylinder -2- from the bracket -3-.

#### Installing

Install in reverse order of removal. Note the following:

- The hose to lift cylinder must be clipped into hose bracket.
- Tighten the threaded connections to the tightening specifications. Refer to ⇒ [W2.5 ash System Overview](#), page 81 .
- Bleed the headlamp washer system after conclusion of the assembly steps. Refer to ⇒ [W4.19 ash System, Bleeding](#), page 108 .

## 4.18 Headlamp Washer System Spray Nozzle Holder

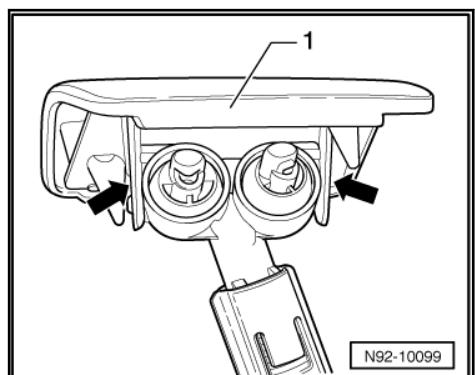


### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

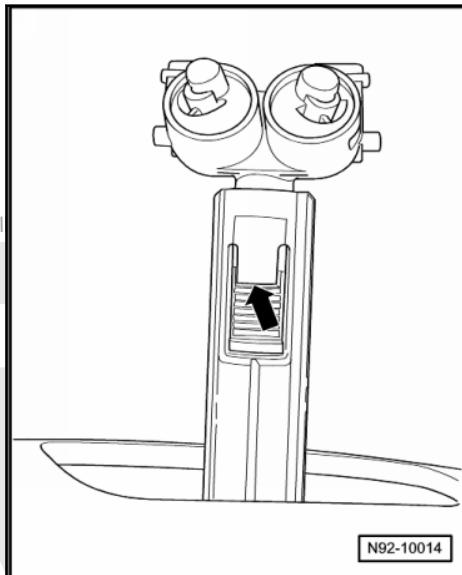
#### Removing

- Remove the spray nozzle, with the cap -1-, from the bumper cover to the stop.





- Remove the cap -1- from the mountings -arrows- on the spray nozzle holder.
- Lift the retaining hook -arrow- slightly and remove the spray nozzle holder.



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### Installing

Use the catches on the spray nozzle holder to adjust how far the cap of the spray nozzle is pulled onto the bumper cover. The cap will not close if the spray nozzle bracket does not retract far enough. If the spray nozzle bracket moves with too much force, the cap and the bumper cover will get damaged.

- Push the spray nozzle holder into the lift cylinder until it locks in place.
- Install the cap on the spray nozzle holder and drain the lift cylinder.
- Check the cap for proper seating on the bumper cover.
- Adjust the cap if necessary by shifting the spray nozzle holder into a higher or lower catch on the lift cylinder.
- Bleed the headlamp washer system after conclusion of the assembly steps [⇒ W4.19 asher System, Bleeding", page 108](#).
- Check and adjust the headlamp washer system spray jets. Refer to Maintenance Manual.

## 4.19 Headlamp Washer System, Bleeding

After assembly work or when first operating, headlamp cleaning system must be ventilated to ensure proper function of lift cylinders and spray nozzles.



### WARNING

*Engage the parking brake and ensure the selector lever is in the "P" position.*

### Procedure

- Fill the tank for the windshield/headlamp washer system.
- Start the engine.



- Switch the headlamp to “ON”.
- Operate headlamp cleaning system several times (3-5 impulses for every three second period).
- If necessary, repeat this ventilation procedure until proper function of lift cylinders and washer nozzles is obtained.





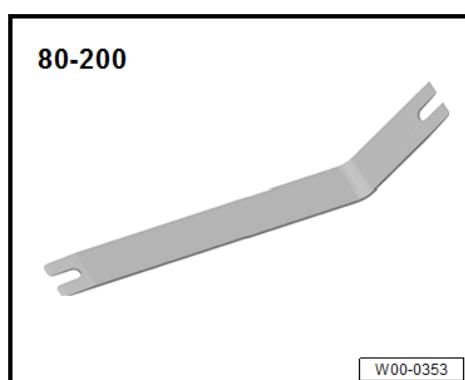
## 5 Special Tools

Special tools and workshop equipment required

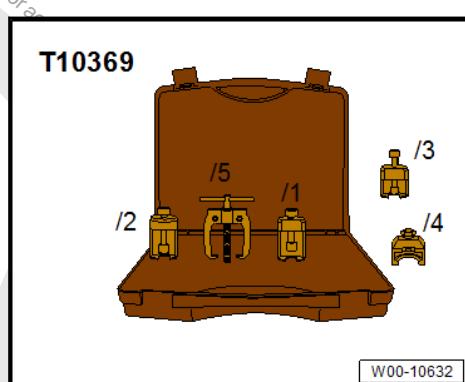
- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-



- ◆ Pry Lever -80-200-



- ◆ Puller - Wiper Arm Kit -T10369-





## 94 – Exterior Lights, Switches

### 1 General Information

- ⇒ [1.1 , page 111](#)
- ⇒ [H1.2 Headlamp Safety Precautions", page 112](#)
- ⇒ [A1.3 Timing", page 115](#)
- ⇒ [C1.4 Column Switch Module", page 115](#)
- ⇒ [C1.5 Column Switch Module, KESSY", page 115](#)
- ⇒ [A1.6 Authorization", page 116](#)
- ⇒ [A1.7 Id", page 117](#)
- ⇒ [P1.8 Parking Assist", page 118](#)
- ⇒ [A1.9 Assistant", page 120](#)
- ⇒ [H1.10 Hatch", page 121](#)

#### 1.1 Headlamps

Always switch off headlamps and remove ignition key before working on headlamps.

Familiarity with the function and operation of the lighting system is needed if there are customer concerns.

Additional information:

- ◆ Refer to Wiring diagrams, Troubleshooting & Component locations.
- ◆ Refer to Owner's Manual.

Headlamps from three different manufacturers are installed:

- ◆ AL (Automotive Lighting)
- ◆ Hella
- ◆ Valeo

Removing and installing the headlamps is identical except for removing and installing the adjustment motor and the cap behind the low beam bulb.

#### DTC recognition and display

The Vehicle Electrical System Control Module -J519- is equipped with OBD.

Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.

#### HID headlamps and cornering lamps

HID headlamps and cornering lamps have "Bi-Xenon" function.

Gas discharge lamps generate only the low beam headlamp in standard Xenon headlamps. "Bi-Xenon" allows "one" gas-discharge lamp to generate low beam and high beam headlamp. For this purpose, an electro-mechanical adjuster (Left Headlamp Reflector Adjustment Solenoid -N395- and Right Headlamp Reflector Adjustment Solenoid -N396-) opens the dimmed region of low beam headlamp when high beam function is operated and a high beam light emission results.

For this reason, the high beam is also adjusted automatically with the low beam on "Bi-Xenon" headlamps.



Headlamps with HID lamps and a cornering lamp do not have "auxiliary high beams".

Cornering lamps system performs the following functions:

- ◆ swiveling low beams and high beams (dynamic cornering lamp) at vehicle speeds above 10 km/h and steering angle steer
- ◆ Cornering lamp bulb (static cornering lamp) at sharp curves (curve radius smaller than 500 m) or on turning-off and vehicles speeds below 50 km/h

#### DTC recognition and display

Automatic headlamp range control, cornering lamps and Vehicle Electrical System Control -J519- are equipped with OBD.

Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.



#### Note

A malfunction in the range control or in the variable front lighting will be displayed in the instrument cluster by the Lamp Failure Indicator Lamp -K170-.

## 1.2 HID Headlamp Safety Precautions

Always switch off headlamps with gas-discharge lamps and remove ignition key before working on headlamps.

Familiarity with the function and operation of the lighting system is needed if there are customer concerns.

Additional information:

- ◆ Refer to Wiring diagrams, Troubleshooting & Component locations
- ◆ Refer to the Owner's Manual.
- ◆ Refer to Self Study Program.

#### DTC recognition and display

The automatic headlamp range control and Vehicle Electrical System Control Module -J519- are equipped with OBD.

Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.



#### WARNING

- ◆ Never change bulbs if you are not familiar with the corresponding steps, safety precautions and the tool.



#### Caution

Observe the safety precautions for the HID headlamp bulb.  
Refer to [H1.2 Headlamp Safety Precautions](#), page 112.

Always read the following instructions and precautions when assembling the HID headlamp:

- ◆ Notes on hazardous high voltage/currents [page 113](#)



- ◆ Notes on pressure/temperature/radiation/electric arc [⇒ page 113](#)
- ◆ Assembly notes on HID lamps [⇒ page 114](#)
- ◆ Disposal regulations for HID lamps [⇒ page 114](#)

#### Special tools and workshop equipment required

- ◆ Protective eyewear
- ◆ Gloves

#### Notes on hazardous high voltage/currents



##### WARNING

*Light system control modules, connectors or components in the bulb socket area conduct dangerous high voltage*

*Control module and igniter operation is only permitted with lamp.*



##### WARNING

- *Switch off the ignition and all electrical consumers and remove the ignition key.*
- *When working on headlamp system, ensure all components are without voltage, including relieving residual voltage after switching headlamps off.*
- *Residual voltages are discharged by switching low beam on and off again after ignition key was removed.*
- *Make sure lamps cannot be switched on when working on headlamp system.*

#### Notes on pressure/temperature/radiation/electric arc



##### WARNING

- ◆ *There are pressures from 7 bar (101 psi) cold to 100 bar (1450 psi) hot in the glass portion of the HID bulb. Temperatures up to 700° C (1292° F) are reached on the hot glass bulb.*
- ◆ *The glass can explode and there is a danger of burning.*
- ◆ *When removing and installing HID bulbs, always wear safety glasses and gloves.*



### WARNING

- *Lamp must only be operated in headlamp housing (protection against contact because of hot lamp, absorption of ultraviolet radiation, avoiding danger of glare, explosion protection).*
- *Glass cones of bulbs can become very hot – danger of burns!*
- *Avoid looking directly into the light beam, since the UV rays given off by the HID lamp are approximately 2.5 times stronger than those of a halogen bulb.*
- *Do not look into the beam of light (danger of glare). It may interfere with the ability to see for a significant period of time.*



### WARNING

- *Avoid contact with burst bulbs.*
- *H7 bulbs and HID bulbs (Xenon/Bi-Xenon) are under pressure and can burst when replaced - danger of injury!*
- *When removing and installing HID bulbs, always wear safety glasses and gloves.*

### Assembly notes on HID lamps



### Caution

- ◆ *Switch off the ignition and all electrical consumers and remove the ignition key.*
- ◆ *Do not touch the glass bulb with bare hands, use clean gloves. The remaining fingerprint would evaporate due to the heat of the operated bulb and condense on the reflector which would impair headlamp luminosity.*
- ◆ *A bulb must only be replaced with one of the same version. Bulb identification can be found on bulb socket or glass cone.*
- ◆ *Harness connectors must engage correctly when installed and must be checked for proper connection.*

### Disposal regulations for HID lamps



### WARNING

- *HID lamps must be disposed of as hazardous waste, never dispose of HID lamps via domestic waste.*
- *HID headlamp bulbs contain metallic mercury (Hg) and traces of thallium. Do not destroy the HID headlamp bulbs.*
- *These components must be returned for proper recycling in accordance with national legislation.*
- *Dispose of only in the designated containers at the responsible collection point.*



## 1.3 Headlamp, Aiming

- Check headlamp adjustment and adjust the headlamps, for all headlamps, refer to Maintenance Manual.

## 1.4 Steering Column Switch Module



### Caution

*The removal and installation of individual steering column switch components must be done in a specified sequence. Refer to **Steering Column Switch Module Removal and Installation**.*



### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [D5.1 Disconnecting and Connecting](#), page 16.*

There are two versions of the Steering Column Combination Switch -E595- components, the Steering Column Electronics Control Module -J527- and the steering column switch mount depending on the manufacturer (Valeo or Kostal). In order to determine which version is installed, check the mounting for the Steering Column Electronic Systems Control Module -J527- on the Steering Column Combination Switch -E595-.

- ◆ Valeo: Three bolts
- ◆ Kostal: One screw at the bottom and two clips at the top.

After installing a new Steering Column Electronics Control Module -J527-, it must be coded. Refer to [page 257](#).

If steering column switch malfunctions occur, the coding of the Steering Column Electronics Control Module -J527- must be checked [page 257](#).

Additional information:

- ◆ Refer to Wiring diagrams, Troubleshooting & Component locations.
- ◆ Refer to Owner's Manual.

### DTC recognition and display

The Steering Column Electronic Systems Control Module -J527- is equipped with OBD.

Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.

## 1.5 Steering Column Switch Module, KES-SY



### Caution

*The removal and installation of individual steering column switch components must be done in a specified sequence. Refer to [C5.13.1 Column Switch Module Components, Sequence](#), page 277.*



There are two versions of the Steering Column Combination Switch -E595- components, the Steering Column Electronics Control Module -J527- and the steering column switch mount depending on the manufacturer (Valeo or Kostal). In order to determine which version is installed, check the mounting for the Steering Column Electronic Systems Control Module -J527- on the Steering Column Combination Switch -E595-.

- ◆ Manufacturer Valeo: 3 bolts
- ◆ Kostal: 1 screw at the bottom and 2 clips at the top.

Code the new Electronic Steering Column Lock Control Module J764- after installing. Refer to [⇒ E5.13.8 Electronic Steering Column Lock Control Module J764, Replacing](#), page 290 .

After installing a new Steering Column Electronics Control Module -J527-, it must be coded. Refer to [⇒ , page 257](#) .

Additional information:

- ◆ Refer to Wiring diagrams, Troubleshooting & Component locations.
- ◆ Refer to Owner's Manual.

#### DTC recognition and display

The Electronic Steering Column Lock Control Module -J764- has OBD.

Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.

## 1.6 Access/Start Authorization



### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [⇒ D5.1 Disconnecting and Connecting](#), page 16 .*

#### DTC recognition and display

The access/start authorization system (Access/Start Authorization Control Module -J518-) is equipped with an OBD.

Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.

#### General Information

The KESSY Access system regulates keyless opening, locking and starting of the vehicle.

#### Opening

The ID sensor in ignition key must be located within reception range of lock location (approximately 1.5 meters). The proximity sensor located on the inside of the door handle is activated whenever the handle is touched. This then speaks to the ID sensor inside the key and the door unlocks immediately if the identification is valid. Pulling the door handle opens the vehicle.

#### Starting

The ID sensor in ignition key must be located in the vehicle interior. The clutch pedal must be pressed on manual transmission vehicles. On vehicles with an automatic transmission and DSG, the selector lever must be in "P" and the brake pedal must be pressed. Press the Start System Button -E378- briefly. This



speaks to the ID sensor in the key and if the identification is valid, the steering wheel unlocks and the vehicle can be started.

It is only possible to start the engine with the Start System Button -E378- when a valid ID sensor is located in the vehicle interior.

### **Locking**

The ID sensor in ignition key must be located within reception range of lock location (approximately 1.5 meters). Touching the locking sensor on the outside of the door handle activates the sensor. This then speaks to the ID sensor inside the key and the vehicle unlocks if the identification is valid.

The Access/Start Authorization Control Module -J518- controls all access/start functions.

Additional information:

- ◆ Refer to Wiring diagrams, Troubleshooting & Component locations.
- ◆ Refer to Owner's Manual.

## **1.7 Parking Aid**

Familiarity with the function and operation of the parking system is essential in the event of customer concerns. Refer to Owner's Manual.

The parking aid system assists the driver while parking, by signaling audibly according to the distance between the vehicle and an object behind the vehicle.

4-channel and 8-channel parking aids are available.

The 4-channel parking aid system consists of:

- ◆ Parking Aid Control Module -J446-
- ◆ Rear Parking Aid Warning Buzzer -H15-
- ◆ Left Rear Center Parking Aid Sensor -G204-
- ◆ Left Rear Inner Parking Aid Sensor -G334-
- ◆ Right Rear Inner Parking Aid Sensor -G335-
- ◆ Right Rear Center Parking Aid Sensor -G205-

### **Note**

- ◆ Due to different software versions, different sensor names may be displayed in the first Parking Aid Control Module -J446- software version. If this is the case, the follow allocation applies:
  - ◆ Left Rear Center Parking Aid Sensor -G204- is Left Rear Parking Aid Sensor -G203-
  - ◆ Left Rear Inner Parking Aid Sensor -G334- is Left Rear Center Parking Aid Sensor -G204-
  - ◆ Right Rear Inner Parking Aid Sensor -G335- is Right Rear Center Parking Aid Sensor -G205-
  - ◆ Right Rear Center Parking Aid Sensor -G205- is Right Rear Parking Aid Sensor -G206-

The 8-channel parking aid system consists of:

- ◆ Parking Aid Control Module -J446-



- ◆ Left Front Parking Aid Sensor -G255-
- ◆ Left Front Center Parking Aid Sensor -G254-
- ◆ Right Front Center Parking Aid Sensor -G253-
- ◆ Right Front Parking Aid Sensor -G252-
- ◆ Left Rear Parking Aid Sensor -G203-
- ◆ Left Rear Center Parking Aid Sensor -G204-
- ◆ Right Rear Center Parking Aid Sensor -G205-
- ◆ Right Rear Parking Aid Sensor -G206-
- ◆ Front Parking Aid Warning Buzzer -H22-
- ◆ Rear Parking Aid Warning Buzzer -H15-
- ◆ Parking Aid Button -E266-

**Function:**

Press the Parking Aid Button -E266- (the Parking Aid Indicator Lamp -K136- in the Parking Aid Button -E266- will light up), or shift into reverse gear to turn it on. To switch off, press the Parking Aid Button -E266- again (the Parking Aid Indicator Lamp -K136- on the Parking Aid Button -E266- will go out), or drive forward faster than approximately 15 km/h.

A short signal tone will sound and the Parking Aid Indicator Lamp -K136- will come on when the parking aid is ready. If the system recognized a malfunction, the long tone will sound for 5 seconds and the Parking Aid Indicator Lamp -K136- will blink.

During the distance measurement, the pauses between chime impulses get shorter as the gap between vehicles gets smaller. At proximity of less than 30 cm, a continuous tone is heard.

**Exception:**

- ◆ Driving along a wall: no warning

**Additional information:**

- ◆ Refer to Wiring diagrams, Troubleshooting & Component locations.
- ◆ Refer to Owner's Manual.

**DTC recognition and display**

The Parking Aid Control Module -J446- will take over control of the parking aid functions.

The Parking Aid Control Module -J446- is equipped with OBD.

Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.

To check the entire parking aid system, perform the output diagnostic test mode. Refer to [A4.5.2 id System: Output Diagnostic Test Mode \(DTM\)](#), page 158 .

## 1.8 Parallel Parking Assist

Familiarity with the function and operation of the parallel parking assistance is essential in the event of customer concerns. Refer to Owner's Manual.

**Function:**

The parallel parking assistance assists the driver when backing up to parallel park in a spot on the driver or passenger side. When parallel parking assistance is activated and the vehicle is moving forward less than 35 km/h, ultrasonic sensors scan for a suitable parking space. When a suitable parking space



is found, the parallel parking assistance directs the driver to drive past the space until the vehicle will be able to parallel park in one movement. When reverse gear is engaged, the parallel parking assistance controls the EPS (electronic power steering = electro-mechanical power steering) which steers the vehicle along a calculated route into the parking space. During this time, the driver still controls the accelerator, the pedals (accelerator, clutch and brake) and determines the vehicle parking speed. During the parking process, the parallel parking assistance sensors and the parking distance sensors are used.

The parking process with the parallel parking assistance will be interrupted under the following conditions:

- ◆ The Parallel Parking Assistance Button -E581- switches off the parallel parking assistance.
- ◆ The ignition is switched off
- ◆ The parking speed is too high (faster than 7 km/h)
- ◆ The driver grabs the steering wheel during the parking process
- ◆ The vehicle is shifted out of reverse gear
- ◆ The time limit for the vehicle standing still is exceeded (approximately 30 seconds)
- ◆ The ESP is switched off or on
- ◆ The ASR is switched on
- ◆ The vehicle is towing a trailer
- ◆ The front parking aid is switched on
- ◆ The sensor recognize a condition, which would cause damage to the vehicle
- ◆ System malfunction



### **WARNING**

- ◆ *The driver is responsible for parking the vehicle.*
- ◆ *The parallel parking assistance does not replace the attention of the driver.*
- ◆ *The sensors have dead zones, whereby it cannot recognize people or other objects.*
- ◆ *The sensors may not always detect small children and animals.*

The parallel parking assistance system consists of:

- ◆ Parallel Parking Assistance Control Module -J791-
- ◆ Left Front Parallel Parking Assistance Sensor -G568-
- ◆ Left Front Parking Aid Sensor -G255-
- ◆ Left Front Center Parking Aid Sensor -G254-
- ◆ Right Front Center Parking Aid Sensor -G253-
- ◆ Right Front Parking Aid Sensor -G252-
- ◆ Right Front Parallel Parking Assistance Sensor -G569-
- ◆ Front Parking Aid Warning Buzzer -H22-
- ◆ Parallel Parking Assistance Button -E581-



- ◆ Parking Aid Button -E266-

Additional information:

- ◆ Refer to Wiring diagrams, Troubleshooting & Component locations.
- ◆ Refer to Owner's Manual.

#### DTC recognition and display:

The Parallel Parking Assistance Control Module -J791- is equipped with OBD.

Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.

Perform the output diagnostic test mode to check the entire parallel parking assistance system, refer to [P4.6.1 Parallel Parking Assistance Control Module J791, Output Diagnostic Test Mode](#), page 158 .

## 1.9 Headlamp assistant

### Note

- ◆ Familiarity with the function and operation of the headlamp assistance is needed if there are customer concerns.
- ◆ Additional information:
- ◆ Refer to Owner's Manual.
- ◆ Refer to Self Study Program.

The high beam assist turns the high beams on and off automatically depending on the surrounding traffic conditions and the vehicle speed. The Light Recognition Sensor -G399- inside the rearview mirror base and the Automatic High Beam Assist Control Module -J844- inside the interior rearview mirror control it.

Turn on the high beam assistant:

- ◆ Ignition switched on
- ◆ Turn the Headlamp Switch -E1- to the **AUTO** position
- ◆ Tilt the turn signal lever into the high beam position

The high beam assist will switch off when the ignition is turned off.

The high beam assist may not switch off at the right time or not at all under the following conditions:

- ◆ On poorly lit streets with street signs that are highly reflective
- ◆ For other motorists, pedestrians, and bicyclists that are not easily seen.
- ◆ Narrow curves, on-coming traffic partially covered, steep hills
- ◆ For on-coming vehicles on streets with a center barrier, when the driver can see clearly over the barrier, for example, truck drivers.
- ◆ For faulty high beam assistants.
- ◆ Fog, snow and heavy rain
- ◆ Dust and sand



- ◆ Stone chip in the vision range for the Light Recognition Sensor -G399-.
- ◆ The vision range of the Light Recognition Sensor -G399- is fogged up, dirty or covered by a sticker, snow or ice.

#### DTC recognition and display

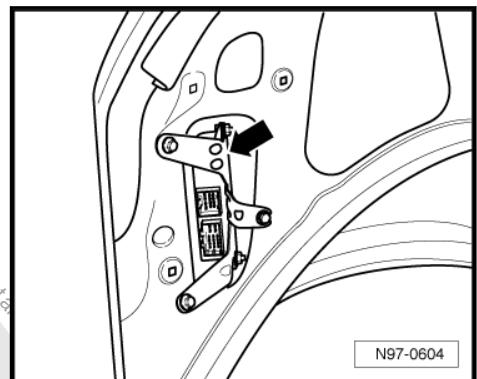
The high beam assist has OBD.

Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.

### 1.10 Trailer Hitch

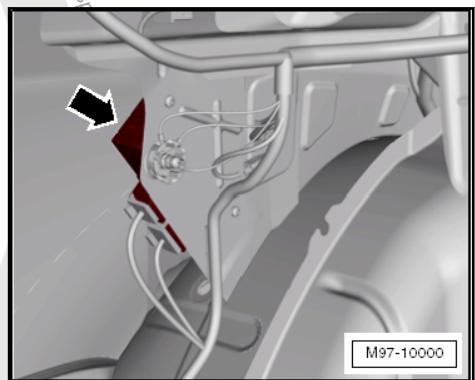
The Towing Recognition Control Module -J345- -arrow- is located behind the left luggage compartment side trim.

Through MY 2009



N97-0604

From MY 2010



M97-10000

#### General Information

Use the Power Outlet Tester -J345- to test the Towing Recognition Control Module -V.A.G 1537/A-.

Control Module for towing sensor -J345- detects from a performance decrease of at least 5 W the "use of trailer" and sends this information to diverse control modules via CAN-Bus. At least the turn signal or parking lamp must be switched on to detect "use of trailer".

The Towing Recognition Control Module -J345- is supplied with information (light control) from the Vehicle Electrical System Control Module -J519- and Comfort System Central Control Module -J393- via the CAN databus.

#### DTC recognition and display

The Towing Recognition Control Module -J345- is equipped with OBD.



Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.





## 2 Description and Operation

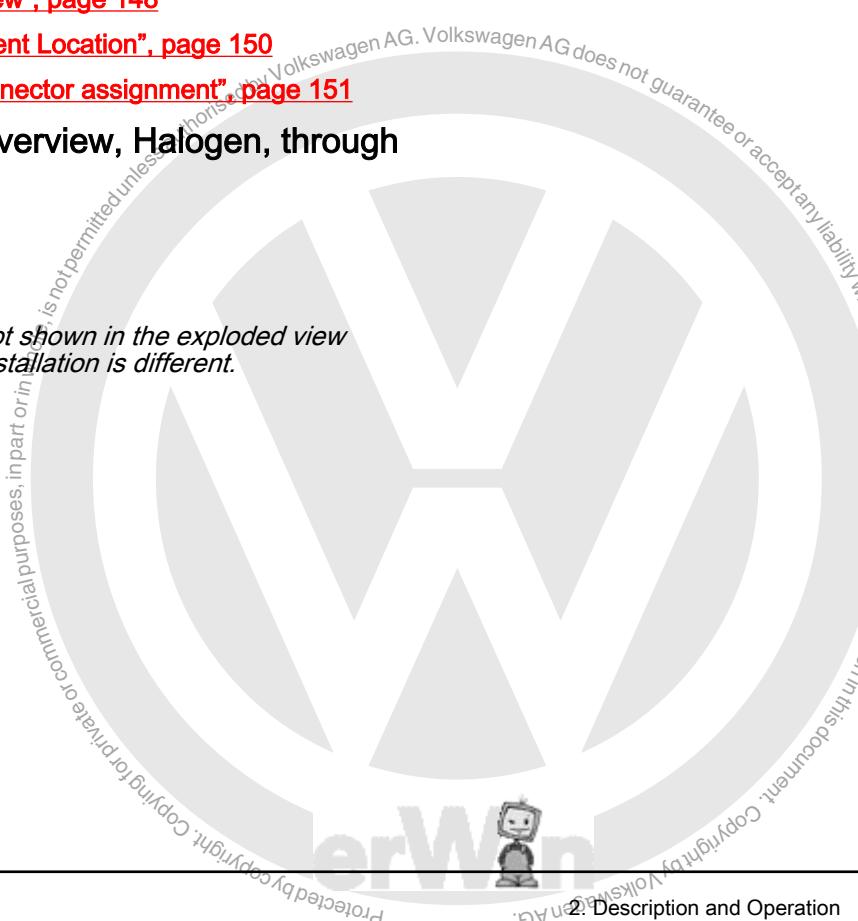
- ⇒ [O2.1 verview, Halogen, through MY 2009", page 123](#)
- ⇒ [O2.2 verview, Halogen, from MY 2010", page 125](#)
- ⇒ [O2.3 verview, HID Headlamp, through MY 2009", page 127](#)
- ⇒ [O2.4 verview, HID Headlamps and Cornering Lamp, from MY 2010", page 129](#)
- ⇒ [L2.5 amp Overview, through MY 2009", page 131](#)
- ⇒ [L2.6 amp Overview, from MY 2010", page 131](#)
- ⇒ [R2.7 earview Mirror Lamps Overview", page 132](#) .
- ⇒ [S2.8 ide Marker Lamps", page 133](#)
- ⇒ [L2.9 amp Bulbs in Body Overview, Sedan", page 133](#)
- ⇒ [T2.10 ail Lamp in Body Overview, Sedan", page 134](#)
- ⇒ [L2.11 amp in Rear Lid Overview, Sedan", page 135](#)
- ⇒ [L2.12 amp in Body Overview, Wagon", page 136](#)
- ⇒ [C2.13 olumn Switch Module Overview, through 05/2010", page 137](#)
- ⇒ [C2.14 olumn Switch Module Overview, from 06/2010", page 139](#)
- ⇒ [C2.15 olumn Switch Module Overview, KESSY", page 141](#)
- ⇒ [A2.16 ccess Authorization System Component Location", page 142](#)
- ⇒ [A2.17 id Assembly, 4-Channel", page 144](#)
- ⇒ [A2.18 id Assembly, 8-Channel", page 146](#)
- ⇒ [P2.19 arking Assist Overview", page 148](#)
- ⇒ [B2.20 eam Assist Component Location", page 150](#)
- ⇒ [T2.21 railer SocketU10 connector assignment", page 151](#)

### 2.1 Headlamp Overview, Halogen, through MY 2009



#### Note

*The positioning motors are not shown in the exploded view because their removal and installation is different.*





**1 - Bolt**

- 4 Nm

**2 - Adjusting Bushings**

- For checking the headlamp setting, refer to [⇒ 15.1.2 nstalled Position, Adjusting](#), page 164

**3 - Left High Beam Headlamp  
Bulb -M30-/Right High Beam  
Headlamp Bulb -M32-**

- Bulb: H7U 12V, 55 W
- Replacing. Refer to [⇒ B5.1.4 eam Headlamp Bulb](#), page 168 .

**4 - Left Parking Lamp -M1-/  
Right Parking Lamp -M3-**

- Bulb: 12 V/5 W
- Replacing. Refer to [⇒ L5.1.5 amp Bulb](#), page 170 .

**5 - Cap**

**6 - Left Front Turn Signal  
Lamp -M5-/Right Front Turn  
Signal Lamp -M7-**

- Bulb: 12 V/21 W
- Replacing. Refer to [⇒ T5.1.6 urn Signal Bulb](#), page 172 .

**7 - Bulb Socket with Holder**

**8 - Body Cross Section**

**9 - Cap**

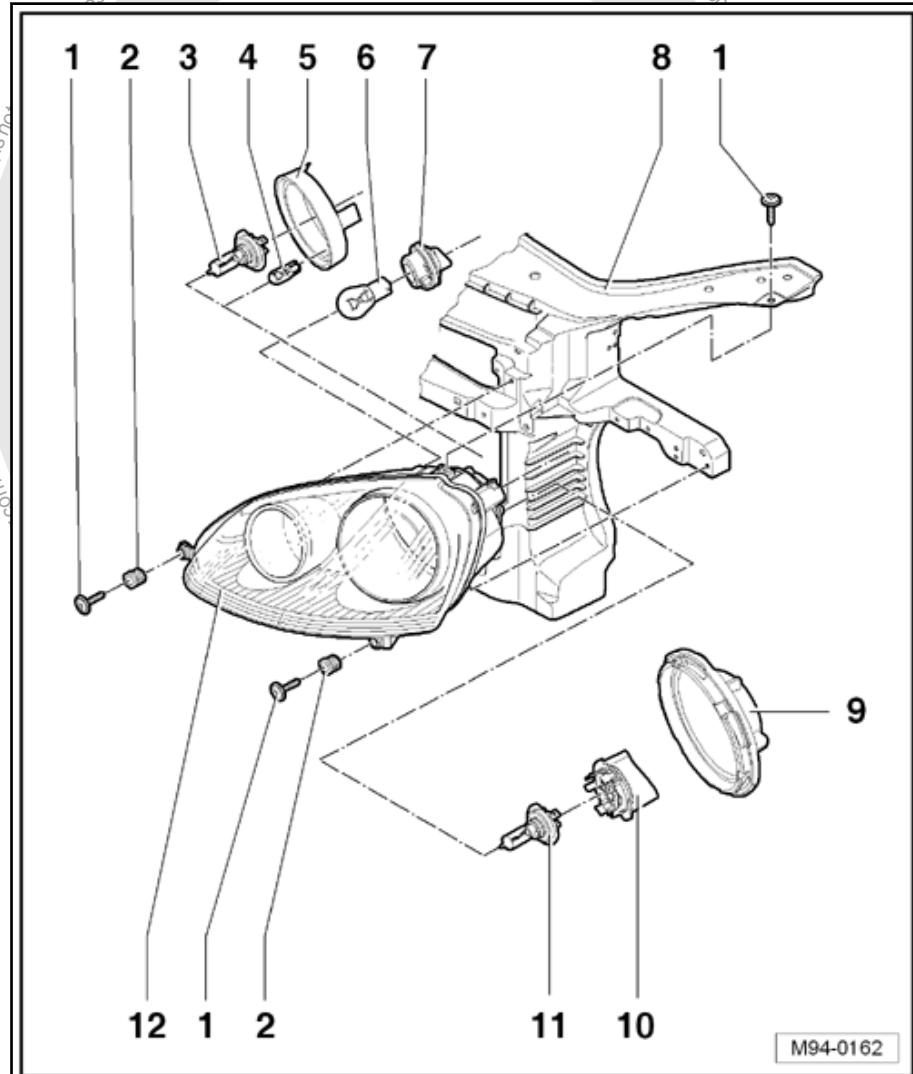
**10 - Bulb Socket with Holder**

**11 - Left Low Beam Headlamp Bulb -M29-/Right Low Beam Headlamp Bulb -M31-**

- Bulb: H7 12 V/55 W
- Replacing. Refer to [⇒ B5.1.3 eam Headlamp Bulb](#), page 166 .

**12 - Headlamps**

- Removing and installing. Refer to [⇒ 5.1.1 , page 162](#) .
- For checking the headlamp setting, refer to [⇒ 15.1.2 nstalled Position, Adjusting](#), page 164
- Headlamp Mounting Tabs, Servicing, refer to [⇒ M5.1.10 ounting Tabs, Servicing](#), page 181



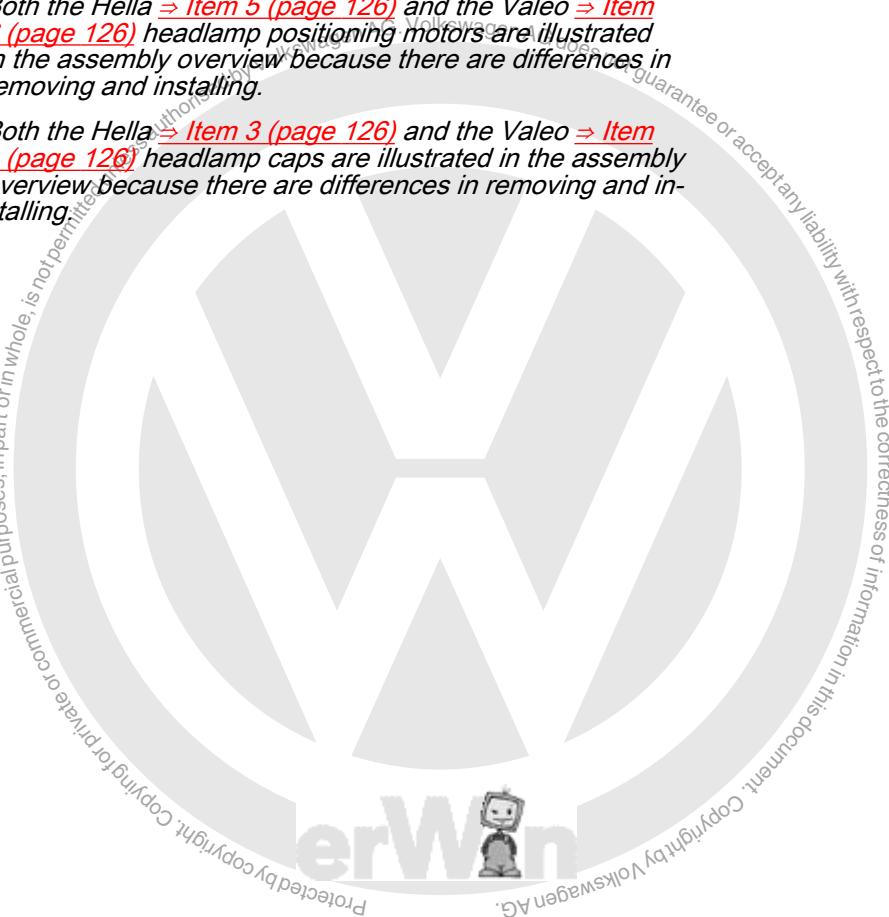


## 2.2 Headlamp Overview, Halogen, from MY 2010



### Note

- ◆ Both the Hella ⇒ [Item 5 \(page 126\)](#) and the Valeo ⇒ [Item 6 \(page 126\)](#) headlamp positioning motors are illustrated in the assembly overview because there are differences in removing and installing.
- ◆ Both the Hella ⇒ [Item 3 \(page 126\)](#) and the Valeo ⇒ [Item 4 \(page 126\)](#) headlamp caps are illustrated in the assembly overview because there are differences in removing and installing.





1 - Cap

2 - Cap

3 - Cap

Only Hella [⇒ page 189](#)

4 - Cap

Only Valeo [⇒ page 190](#)

5 - Left Headlamp Beam Adjustment Motor -V48-/Right Headlamp Beam Adjustment Motor -V49-

Hella

Removing and installing. Refer to [⇒ B5.2.7 eam Adjustment Motor, Hella", page 196 .](#)

6 - Left Headlamp Beam Adjustment Motor -V48-/Right Headlamp Beam Adjustment Motor -V49-

Manufactured by Valeo

Removing and installing. Refer to [⇒ B5.2.8 eam Adjustment Motors, Valeo", page 198 .](#)

7 - Bulb Socket with Holder

8 - Left Low Beam Headlamp Bulb -M29-/Right Low Beam Headlamp Bulb -M31-

Bulb: H7 12 V/55 W

Replacing. Refer to [⇒ B5.1.3 eam Headlamp Bulb", page 166 .](#)

9 - Headlamps

Removing and installing. Refer to [⇒ 5.2.1 , page 185 .](#)

For checking the headlamp setting, refer to [⇒ 15.2.2 nstalled Position, Adjusting", page 187](#)

Headlamp Mounting Tabs, Servicing, refer to [⇒ M5.2.9 ounting Tabs, Servicing", page 201](#)

10 - Guide

11 - Carrier, Front End

12 - Bolt

5 Nm

13 - Left High Beam Headlamp Bulb -M30-/Right High Beam Headlamp Bulb -M32-

Bulb: 12 V 15/55 W

Replacing. Refer to [⇒ B5.1.4 eam Headlamp Bulb", page 168 .](#)

14 - Left Parking Lamp -M1-/Right Parking Lamp -M3-

Bulb: 12 V/5 W

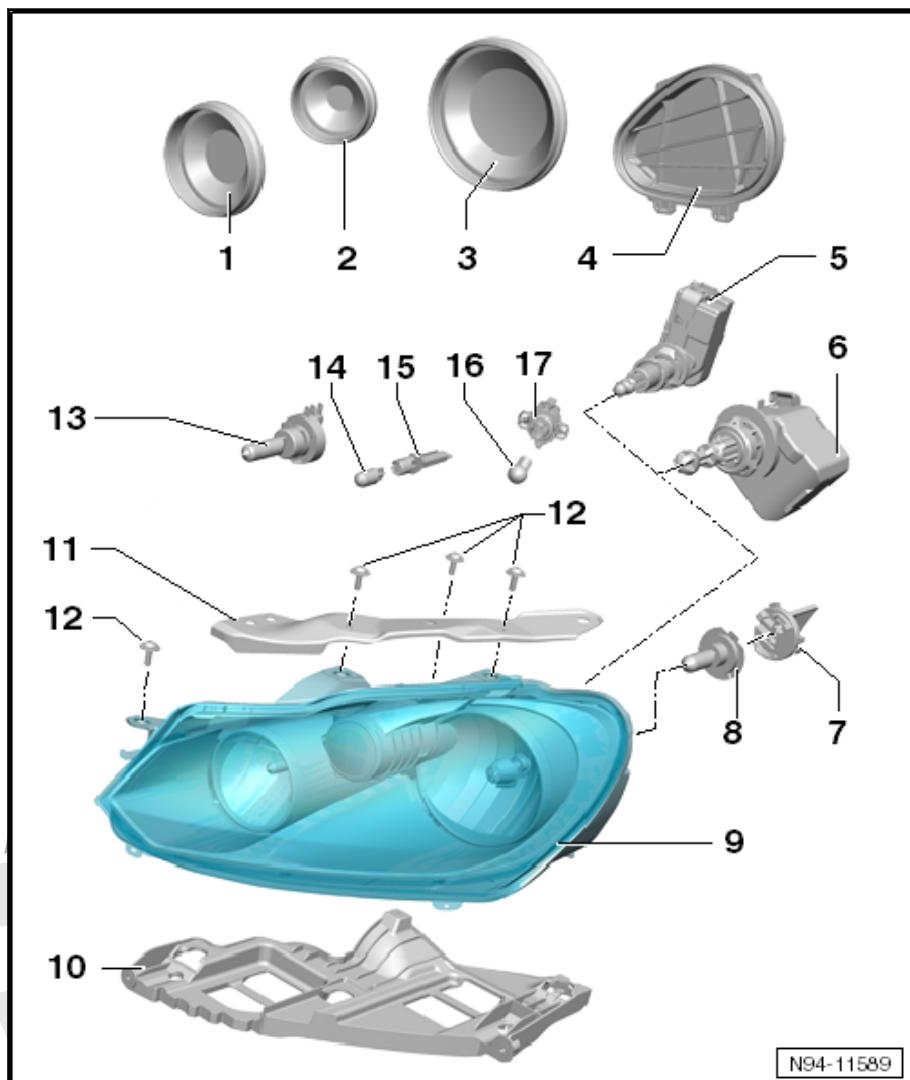
Replacing. Refer to [⇒ L5.1.5 amp Bulb", page 170 .](#)

15 - Bulb Socket with Holder

16 - Left Front Turn Signal Lamp -M5-/Right Front Turn Signal Lamp -M7-

Bulb: 12 V/24 W

Replacing. Refer to [⇒ T5.1.6 urn Signal Bulb", page 172 .](#)





## 17 - Bulb Socket with Holder

### 2.3 Headlamp Overview, HID Headlamp, through MY 2009





**1 - Ventilation Hose**

- On headlamp

**2 - Left Headlamp Beam Adjustment Motor -V48-/Right Headlamp Beam Adjustment Motor -V49-**

- Removing and installing. Refer to [R5.3.7 ange Control Positioning Motor](#), page 213.

**3 - Bolt**

- 2 Nm

**4 - Cap**

**5 - HID Lamp Igniter Unit - N195-**

- Removing and installing. Refer to [page 204](#).

**6 - Lamp locking device**

**7 - Left Hid Headlamp Bulb -L13-/Right Hid Headlamp Bulb -L14-**

- Bulb: D2S 35 W
- Safety Precautions, refer to [H1.2 eadlamp Safety Precautions](#), page 112.
- Replacing. Refer to [B5.3.3 ulb](#), page 204.

**8 - Bolt**

- 4 Nm

**9 - Headlamps**

- Removing and installing. Refer to [5.1.1 , page 162](#).
- For checking the headlamp setting, refer to [I5.1.2 nstalled Position, Adjusting](#), page 164
- Headlamp Mounting Tabs, Servicing, refer to [M5.3.11 ounting Tabs, Servicing](#), page 222

**10 - Headlamp Range Control Module -J431-**

- 1.5 Nm
- Removing and installing. Refer to [H5.3.9 eadlamp Range Control ModuleJ431](#), page 219.
- Coding. Refer to [, page 220](#).

**11 - Left Front Level Control System Sensor -G78-**

- Removing and installing. Refer to [C5.3.10 ontrol System Sensor](#), page 221.
- Checking. Refer to [, page 221](#).

**12 - Left Rear Level Control System Sensor -G76-**

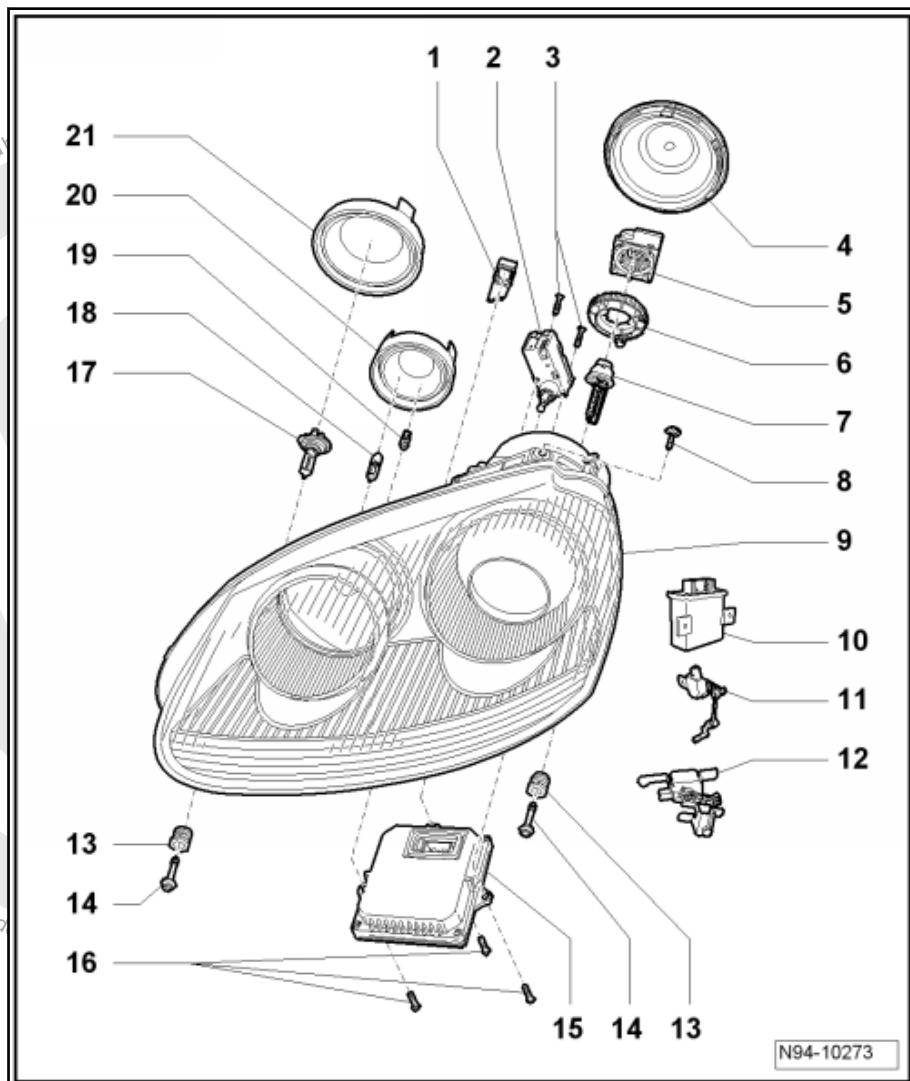
- Removing and installing. Refer to [C5.3.10 ontrol System Sensor](#), page 221.
- Checking. Refer to [, page 221](#).

**13 - Adjustment Bushing**

- For checking the headlamp setting, refer to [I5.1.2 nstalled Position, Adjusting](#), page 164

**14 - Bolt**

- 4 Nm





**15 - Left High-intensity Gas Discharge Lamp Control Module -J343-/Right High-intensity Gas Discharge Lamp Control Module -J344-**

- not capable of On Board Diagnostic (OBD)
- Removing and installing. Refer to [⇒ L5.3.8 amp Control Module”, page 217](#).

**16 - Bolt**

- 2 Nm

**17 - Left High Beam Headlamp Bulb -M30-/Right High Beam Headlamp Bulb -M32-**

- Bulb: H7U 12V, 55 W
- Replacing. Refer to [⇒ B5.3.4 eam Headlamp Bulb, Replacing”, page 207](#).

**18 - Left Front Turn Signal Lamp -M5-/Right Front Turn Signal Lamp -M7-**

- Bulb: H2 WLL 12 V/21 W
- Replacing. Refer to [⇒ T5.3.6 urn Signal Bulb”, page 211](#).

**19 - Left Parking Lamp -M1-/Right Parking Lamp -M3-**

- Bulb: W 12 V/5 W
- Replacing. Refer to [⇒ L5.3.5 amp Bulb”, page 209](#).

**20 - Cap**

**21 - Cap**

**2.4 Headlamps Overview, HID Headlamps and Cornering Lamp, from MY 2010**



1 - Cap

2 - Cap

3 - Left Front Turn Signal Lamp -M5-/Right Front Turn Signal Lamp -M7-

- Bulb: PSY 12 V/24 W
- Replacing. Refer to [S5.4.4 ignal Bulb](#), page 228 .

4 - Left Parking Lamp -M1-/Right Parking Lamp -M3-

- Bulb: glass base bulb 12 V/5 W
- Replacing. Refer to [L5.4.5 amp Bulb](#), page 229 .

5 - Left Headlamp Beam Adjustment Motor -V48-/Right Headlamp Beam Adjustment Motor -V49-

- Removing and installing. Refer to [B5.4.9 eam Adjustment Motor](#), page 235 .
- Checking. Refer to [page 235](#) .

6 - Left Hid Headlamp Bulb -L13-/Right Hid Headlamp Bulb -L14-

- Bulb: D1S 12 V/35 W
- Safety Precautions, refer to [H1.2 eadlamp Safety Precautions](#), page 112
- Replacing. Refer to [B5.4.3 ub](#), page 226 .

7 - Headlamps

- Removing and installing. Refer to [H5.4.1 eadlamp](#), page 223 .
- For checking the headlamp setting, refer to [I5.4.2 nstalled Position, Adjusting, from MY 2010](#), page 225
- Headlamp Mounting Tabs, Servicing, refer to [M5.4.13 ounting Tabs, Servicing](#), page 236

8 - Left HID headlamp ballast -J426- and right HID headlamp ballast -J427-

- Removing and installing. Refer to [H5.4.6 eadlamp Ballast](#), page 231 .

9 - Bolt

- 1.4 Nm

10 - Guide

11 - Bolt

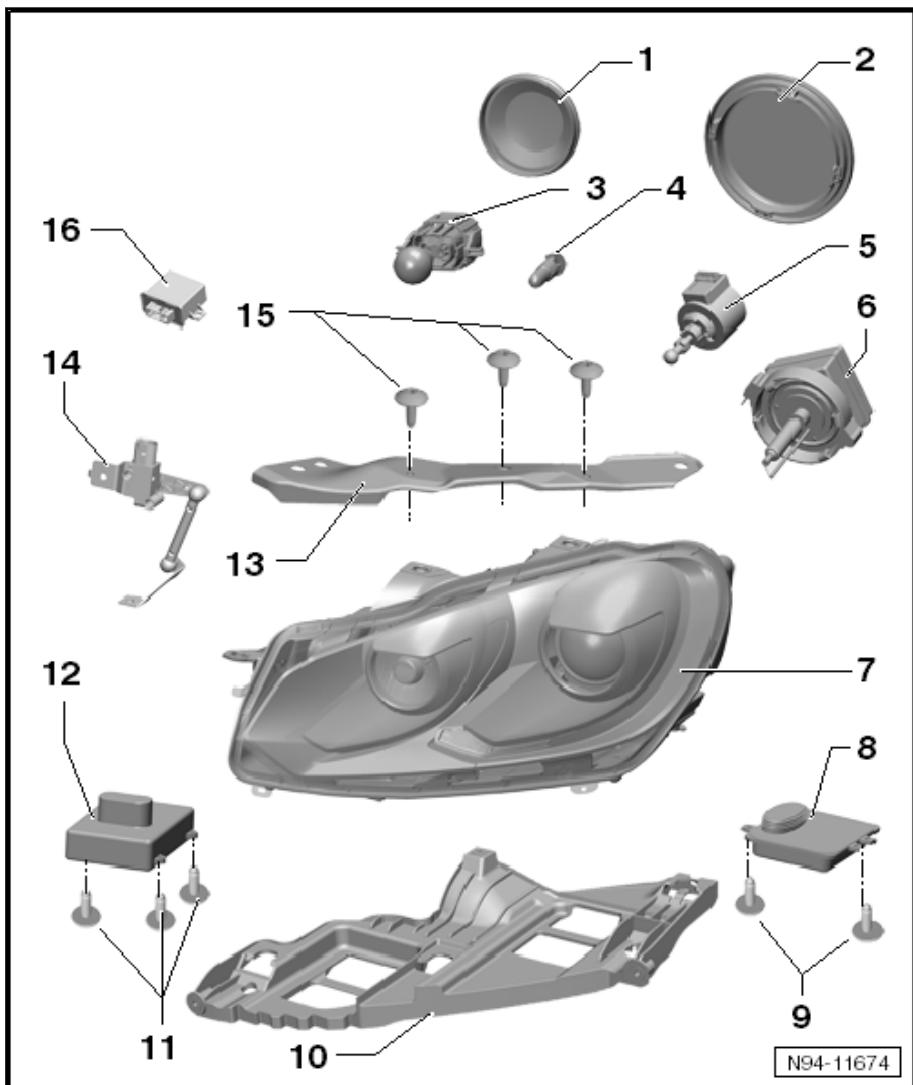
- 1.4 Nm

12 - Left Headlamp Power Output Stage -J667-/Right Headlamp Power Output Stage -J668-

- Removing and installing. Refer to [P5.4.7 over Output Stage](#), page 232 .
- Checking. Refer to [, page 233](#) .

13 - Carrier, Front End

14 - Left Front Level Control System Sensor -G78-/Left Rear Level Control System Sensor -G76-





- Removing and installing. Refer to [L5.4.11 evel Sensor](#), page 236 .

#### 15 - Bolts

- 5 Nm

#### 16 - Headlamp Range Control Module -J431-

- 1.5 Nm
- Removing and installing. Refer to [H5.4.8 eadlamp Range Control ModuleJ431](#) , page 233 .
- Coding. Refer to [page 234](#) .

## 2.5 Fog Lamp Overview, through MY 2009

1 - Front Bumper

2 - Ventilation Hose

3 - Left Front Fog Lamp Bulb  
-L22-/Right Front Fog Lamp  
Bulb -L23-

- Bulb: H11 12 V/55 W
- Replacing. Refer to [L5.5.3 amp Bulb/Cornering Lamp](#), page 239 .

4 - Fog Lamp Housing

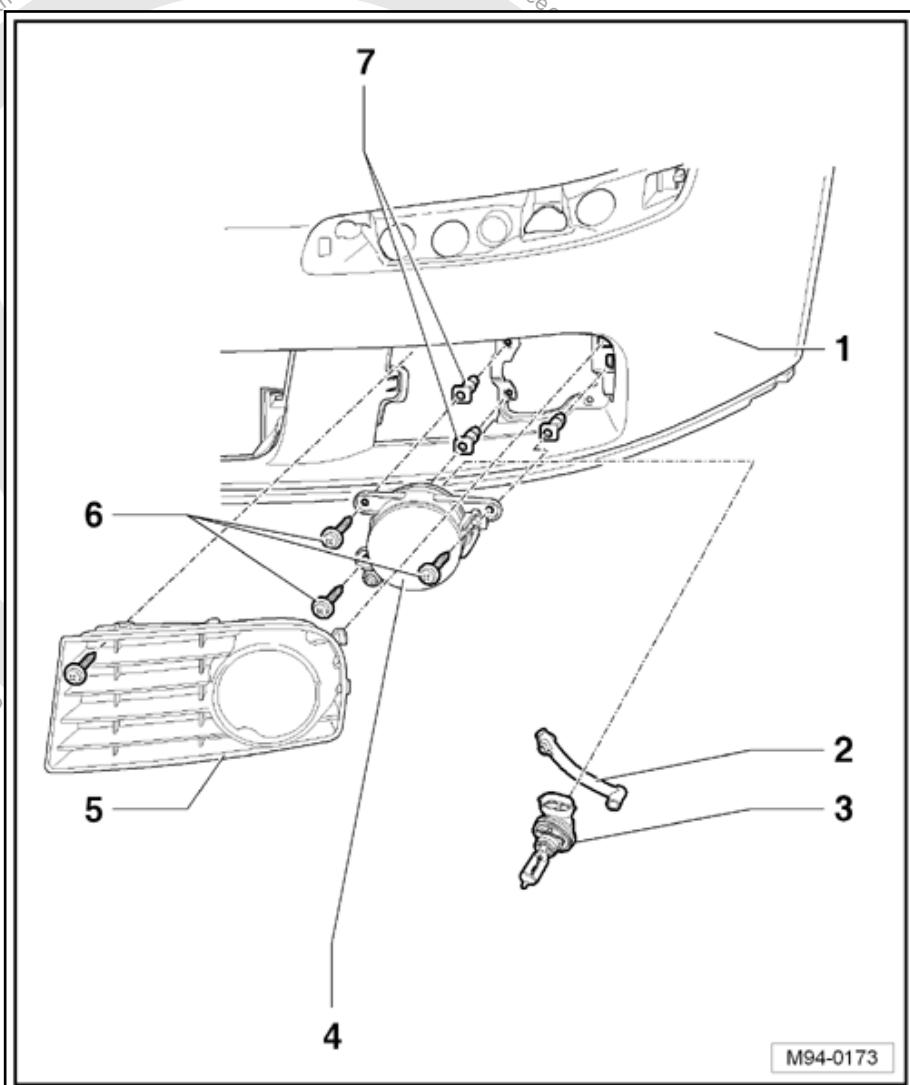
- Removing and installing. Refer to [L5.5.1 amps, through MY 2009](#), page 237 .

5 - Cap

6 - Bolt

- 1.5 Nm

7 - Expanding Nut



## 2.6 Fog Lamp Overview, from MY 2010



1 - Front Bumper Cover

2 - Fog Lamp Housing

- Removing and installing. Refer to [L5.5.2 amps, from MY 2010](#), page 238 .

3 - Bolt

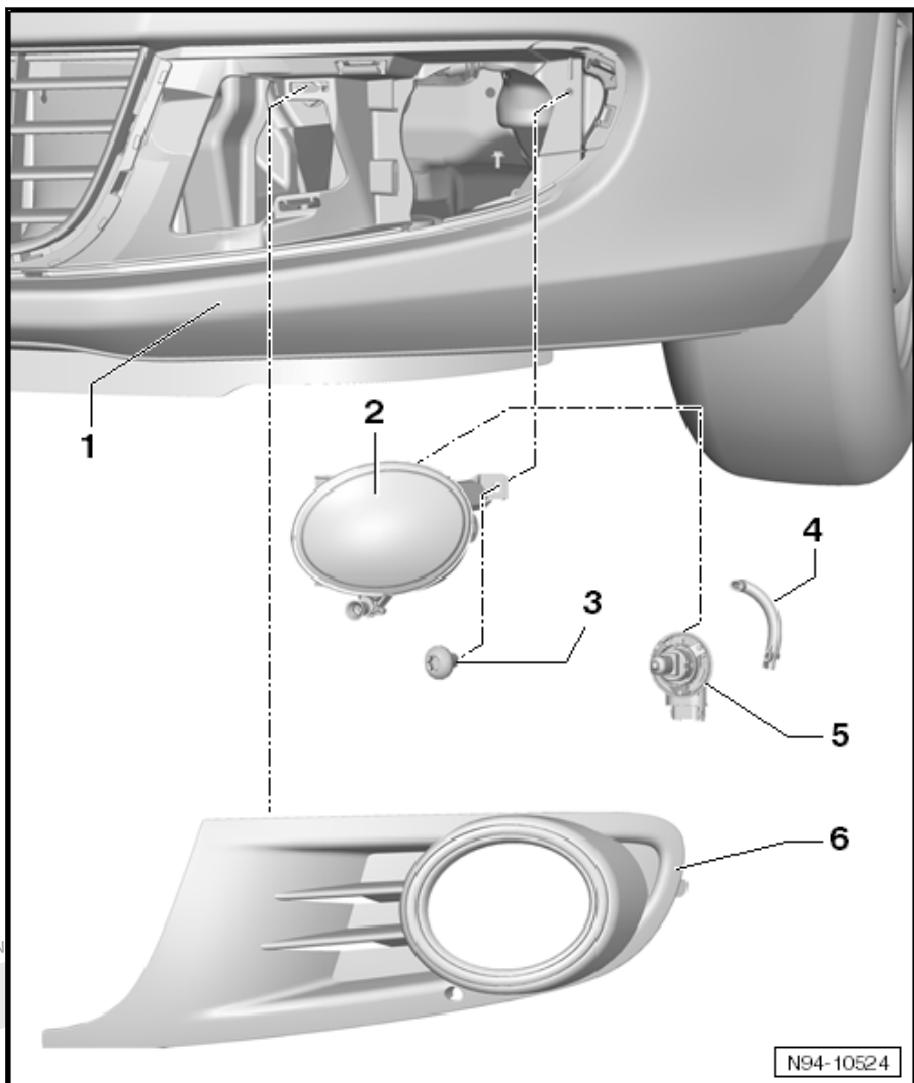
- 2 Nm

4 - Ventilation Hose

5 - Left Fog Lamp Bulb -L22-/Right Fog Lamp Bulb -L23- and Left Cornering Lamp Bulb -L148-/Right Cornering Lamp Bulb -L149-

- Bulb: HB4 12 V/51 W
- Replacing. Refer to [L5.5.3 amp Bulb/Cornering Lamp](#), page 239 .

6 - Cap

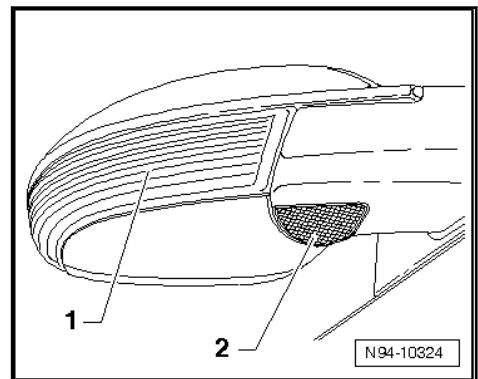


## 2.7 Exterior Rearview Mirror Lamps Overview

### General Information

The Driver Exterior Mirror Turn Signal Lamp Bulb -L131-/Front Passenger Exterior Mirror Turn Signal Lamp Bulb -L132- (turn signal) are inside the exterior mirror housing.

In addition, there is a Driver Entry Lamp (in Outside Mirror) -W52-/Front Passenger Entry Lamp (in outside mirror) -W53-, located in each of the exterior rearview mirror housings that lights the dark entry area around the driver and passenger door.



- 1 - Driver Exterior Rearview Mirror Turn Signal Bulb -L131-/Front Passenger Exterior Rearview Mirror Turn Signal Bulb -L132-
- 2 - Driver Entry Lamp In Exterior Rearview Mirror -W52-/Front Passenger Entry Lamp In Exterior Rearview Mirror -W53-

#### DTC recognition and display

The Vehicle Electrical System Control Module -J519- is equipped with OBD.

Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.

### 2.8 Rear Side Marker Lamps

The Left Tail Lamp -M12-/Right Tail Lamp -M4- function as the Rear Side Marker Lamps -M2-.

### 2.9 Tail Lamp Bulbs in Body Overview, Sedan





**1 - Nut**

- 3.5 Nm

**2 - Left Brake Lamp -M9-/Right Brake Lamp -M10-**

- Bulb: P 12 V/21 W

**3 - Tail Lamp Housing Inside Side Panel**

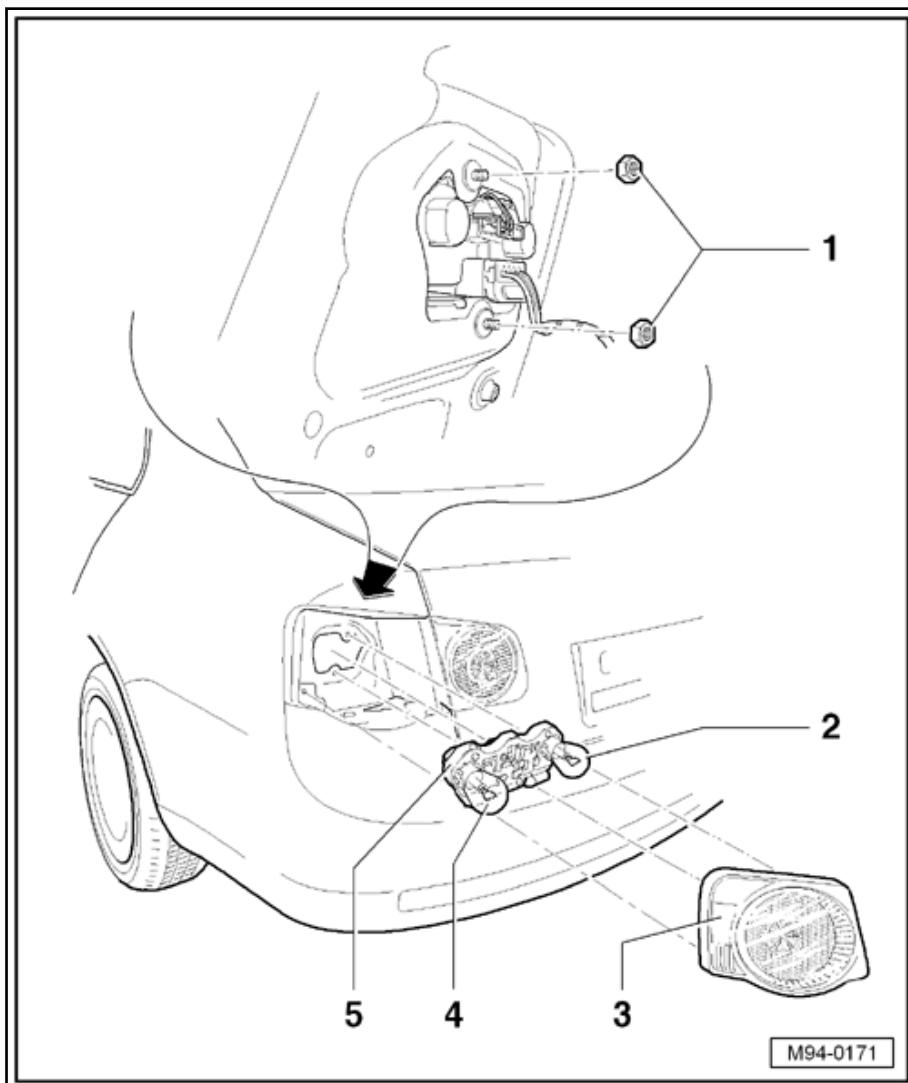
- Contains the daytime running lamp and parking lamp LED module
- Removing and installing. Refer to [L5.8.1 amp Bulbs, Sedan](#), page 244 .

**4 - Left Rear Turn Signal Bulb -M6-/Right Rear Turn Signal Bulb -M8-**

- PY 12 V/21 W bulb

**5 - Bulb Holder**

- Removing and installing. Refer to [H5.8.2 older Tail Lamp in Body, Sedan](#), page 245 .



## 2.10 LED Tail Lamp in Body Overview, Sedan



**1 - Nut**

3.5 Nm

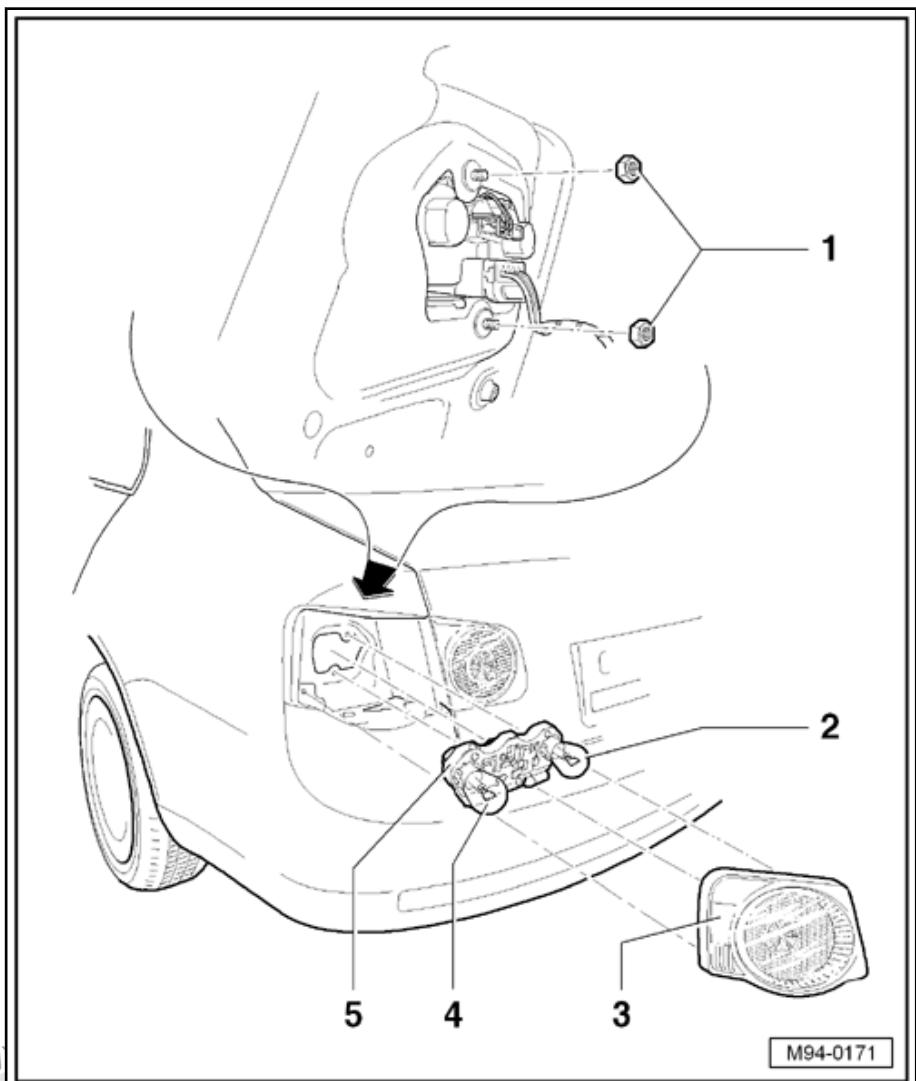
**2 - LED**

**3 - Tail Lamps in Side Panel**

Removing and installing. Refer to [T5.8.3 Tail Lamp in Body, Sedan](#), page 245.

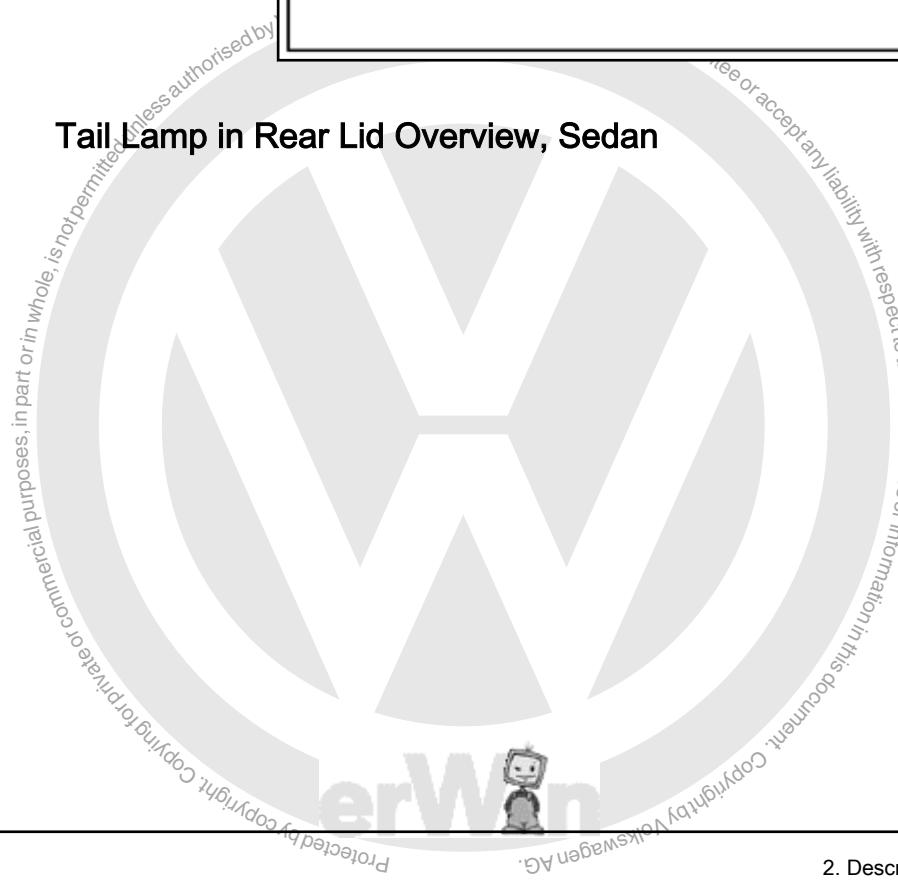
**4 - LED**

**5 - Bulb Holder**



**2.11**

**Tail Lamp in Rear Lid Overview, Sedan**





**1 - Nut**

□ 3.5 Nm

**2 - Bulb Holder**

□ Removing and installing. Refer to [L5.8.5 id Tail Lamp, Bulb Holder, Sedan](#), page 247 .

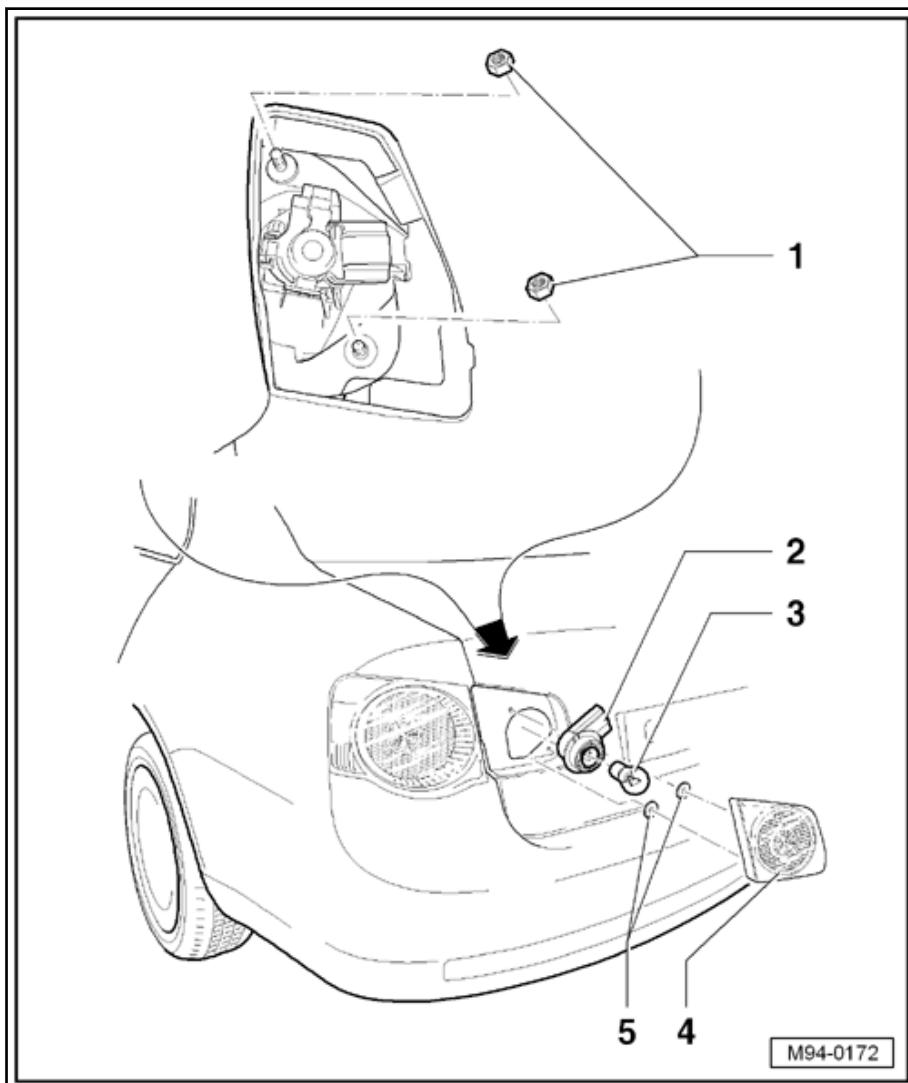
**3 - Left backup lamp -M16-/left rear fog lamp -L46-/right back-up lamp -M17-**

□ Bulb: P 12 V/21 W

**4 - Tail Lamp Assembly Housing in Rear Lid**

□ Removing and installing. Refer to [L5.8.4 id Tail Lamp, Sedan](#), page 246 .

**5 - Washer**



## 2.12 Tail Lamp in Body Overview, Wagon



**1 - Nut**

- 3.5 Nm

**2 - Left Brake Lamp -M9-/Right Brake Lamp -M10-**

- Bulb: P 12 V/21 W

**3 - Right Tail lamp -M2-/Left Tail lamp -M4-**

- Bulb: P 12 V/21 W

**4 - Tail Lamp Housing**

- Removing and installing. Refer to [W5.8.6 agon](#), page 248.

**5 - Rear Fog Lamp Bulb -L20-/Right Back-Up Lamp -M17-**

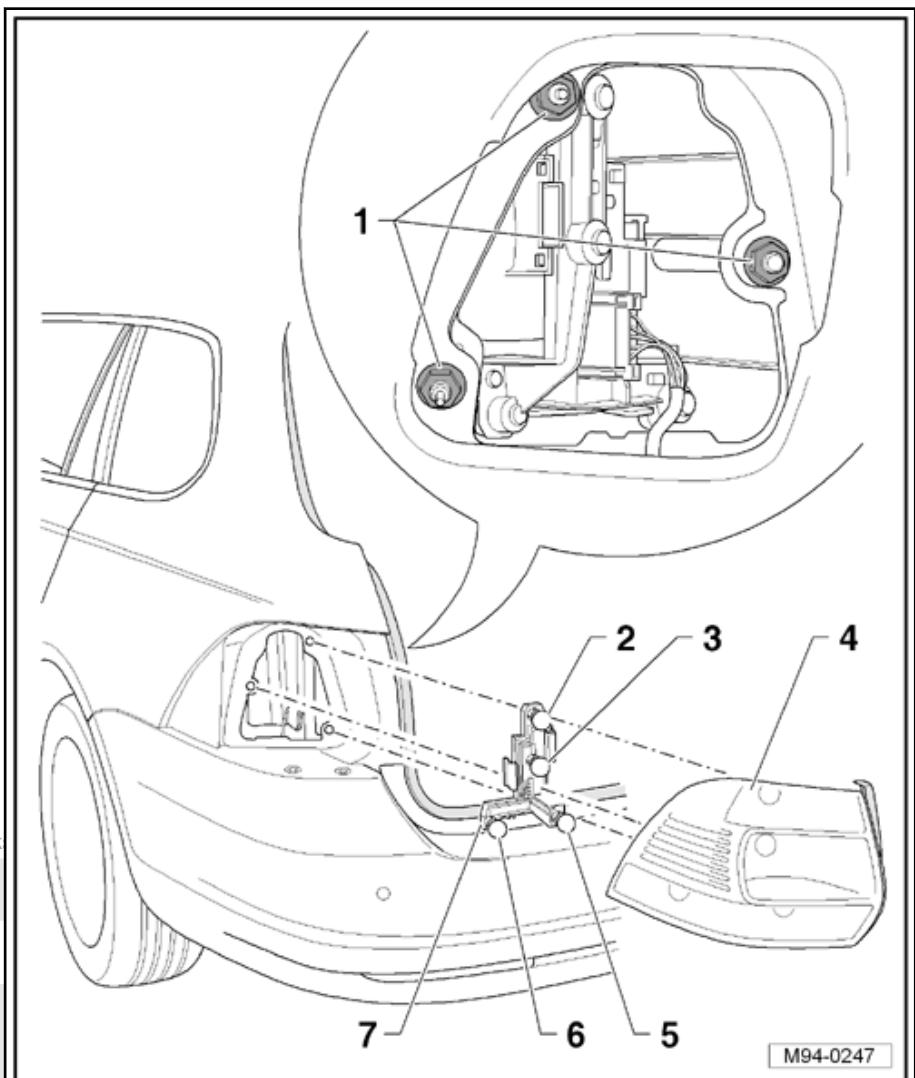
- Bulb: P 12 V/21 W

**6 - Left Rear Turn Signal Bulb -M6-/Right Rear Turn Signal Bulb -M8-**

- Bulb: P 12 V/21 W

**7 - Bulb Holder**

- Removing and installing. Refer to [C5.8.7 arrier, Wagon](#), page 249.



## 2.13

### Steering Column Switch Module Overview, through 05/2010

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### 1 - Turn Signal Switch

- Consists of Turn Signal Switch -E2-/Headlamp Dimmer/Flasher Switch -E4-/Cruise Control Switch -E45-
- In the illustration, the "Turn Signal Switch" is depicted without Cruise Control Switch -E45-
- Follow the removing and installing sequence. Refer to [⇒ C5.11.1 column Switch Components Sequence](#), page 255
- Removing and installing. Refer to [⇒ T5.11.4 turn Signal SwitchE2](#), page 259 .

### 2 - Steering Column Switch Mount

- Follow the removing and installing sequence. Refer to [⇒ C5.11.1 column Switch Components Sequence](#), page 255
- Removing and installing. Refer to [⇒ C5.11.6 column Switch Base Carrier](#), page 261 .

### 3 - Windshield Wiper Switch -E-

- Follow the removing and installing sequence. Refer to [⇒ C5.11.1 column Switch Components Sequence](#), page 255
- Removing and installing. Refer to [⇒ W5.11.5 Windshield Wiper SwitchE](#), page 260

### 4 - Bolt

- 1 Nm

### 5 - Steering Column Electronics Control Module -J527-

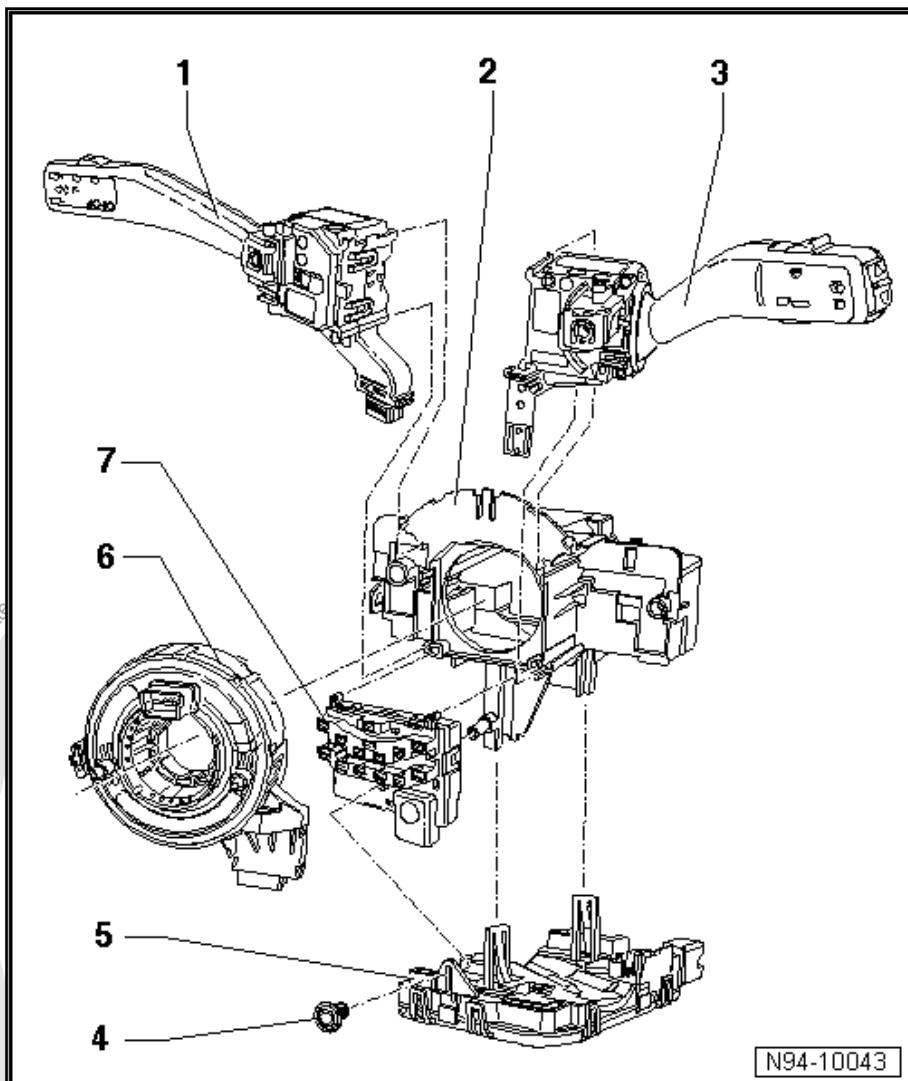
- Follow the removing and installing sequence. Refer to [⇒ C5.11.1 column Switch Components Sequence](#), page 255
- Removing and installing. Refer to [⇒ S5.11.2 steering Column Electronics Control ModuleJ527](#), page 256 .
- Coding. Refer to [⇒](#), page 257 .
- Output diagnostic test mode. Refer to [⇒](#), page 258 .

### 6 - Airbag Spiral Spring/Return Spring with Slip Ring -F138-

- Follow the removing and installing sequence. Refer to [⇒ C5.11.1 column Switch Components Sequence](#), page 255
- Removing and installing. Refer to [⇒ A5.11.3 irbag Spiral Spring/Return Spring with Slip RingF138](#), page 258 .

### 7 - Steering Angle Sensor -G85-

- Follow the removing and installing sequence. Refer to [⇒ C5.11.1 column Switch Components Sequence](#), page 255
- Removing and installing. Refer to [⇒ S5.11.7 steering Angle SensorG85](#), page 263 .





Basic setting [», page 263](#)

## 2.14 Steering Column Switch Module Overview, from 06/2010



### Note

*There are different versions of the Steering Column Electronics Control Module -J527-, the Steering Column Combination Switch -E595- and the steering column switch mount depending on the manufacturer (Valeo or Kostal). The Valeo version is shown in the illustration.*



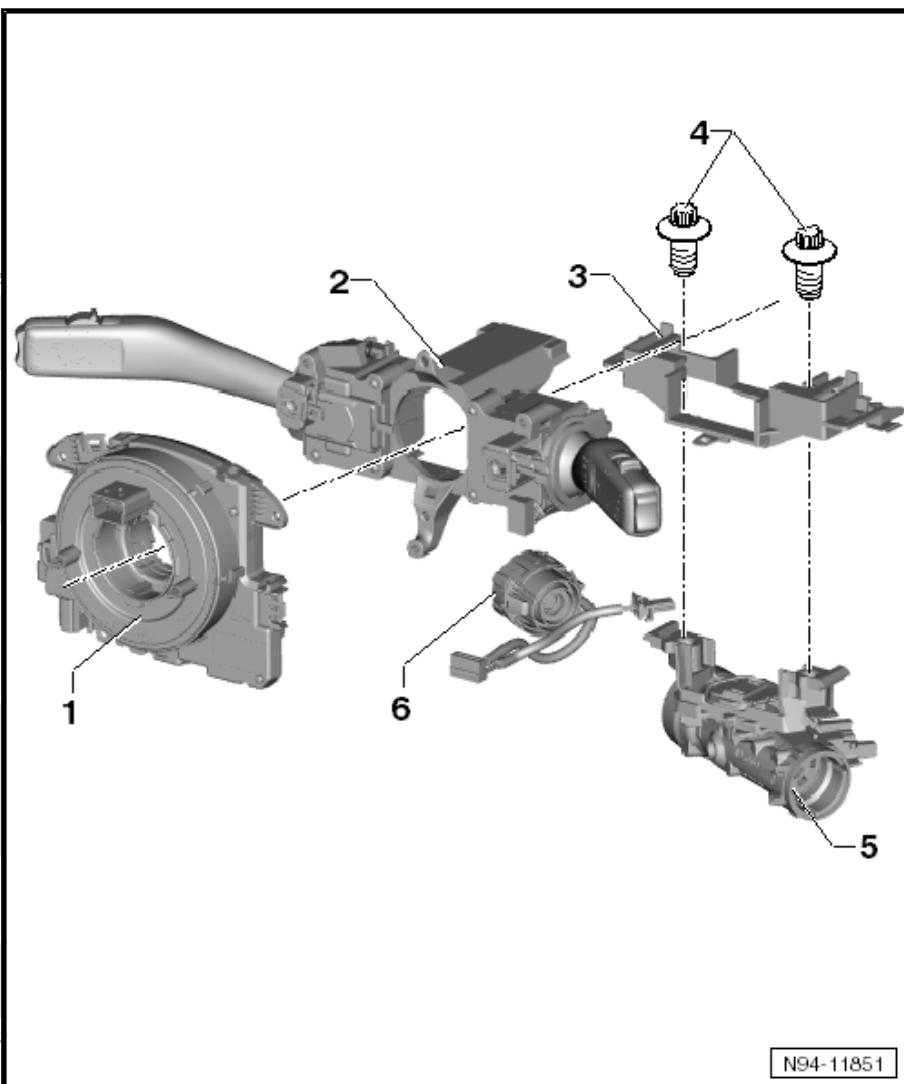


## 1 - Steering Column Electronics Control Module -J527-

- Follow the removing and installing sequence. Refer to [⇒ C5.12.1 column Switch Components Sequence](#), page 264
- Removing and installing. Refer to [⇒ S5.12.2 steering Column Electronics Control Module J527, Valeo](#), page 265 or [⇒ S5.12.3 steering Column Electronics Control Module J527, Kostal](#), page 267
- Coding. Refer to [⇒ C5.12 column Switch Module, from 06/2010](#), page 264 .
- Output diagnostic test mode. Refer to [⇒ page 258](#) .
- Tightening specification: 1.5 Nm

## 2 - Steering Column Combination Switch -E595-

- Follow the removing and installing sequence. Refer to [⇒ C5.12.1 column Switch Components Sequence](#), page 264
- Removing and installing. Refer to Removing and installing. Refer to [⇒ S5.12.4 steering Column Combination Switch E595, Valeo](#), page 269 or [⇒ S5.12.5 steering Column Combination Switch E595, Kostal](#), page 271 .



## 3 - Steering Column Switch Mount

- Follow the removing and installing sequence. Refer to [⇒ C5.12.1 column Switch Components Sequence](#), page 264
- Removing and installing. Refer to [⇒ S5.12.4 steering Column Combination Switch E595, Valeo](#), page 269 or [⇒ S5.12.5 steering Column Combination Switch E595, Kostal](#), page 271

## 4 - Shear Bolts

- Break-off torque: approximately 15 Nm

## 5 - Steering Lock Housing

The steering lock housing must be remove and installed together with the steering column switch mount.

- Follow the removing and installing sequence. Refer to [⇒ C5.12.1 column Switch Components Sequence](#), page 264
- Removing and installing. Refer to [⇒ C5.13 column Switch Module, KESSY](#), page 277 .

## 6 - Ignition Switch and Lock Cylinder

- Removing and installing. Refer to [⇒ I5.14.3 gnition SwitchD](#) , page 295 .



## **2.15 Steering Column Switch Module Overview, KESSY**

There are different versions of the Steering Column Electronic Systems Control Module -J527- /Steering Column Combination Switch -E595- and the steering column switch base carrier depending on the manufacturer (Valeo or Kostal). The Valeo version is shown in the illustration.



#### 1 - Steering Column Electronics Control Module -J527-

- Follow the removing and installing sequence. Refer to [C5.13.1 column Switch Module Components, Sequence](#), page 277
- Removing and installing. Refer to [C5.13 column Switch Module, KESSY](#), page 277 .
- Coding. Refer to [C5.13 column Switch Module, KESSY](#), page 277 .
- Screws: 1.5 Nm

#### 2 - Steering Column Combination Switch -E595-

- Follow the removing and installing sequence. Refer to [C5.13.1 column Switch Module Components, Sequence](#), page 277
- Removing and installing:

#### 3 - Steering Column Switch Mount

- Follow the removing and installing sequence. Refer to [C5.13.1 column Switch Module Components, Sequence](#), page 277
- Removing and installing. Refer to [C5.13 column Switch Module, KESSY](#), page 277 .

#### 4 - Shear Bolts

- Break-off torque: approximately 15 Nm

#### 5 - Electronic Steering Column Lock Control Module -J764-

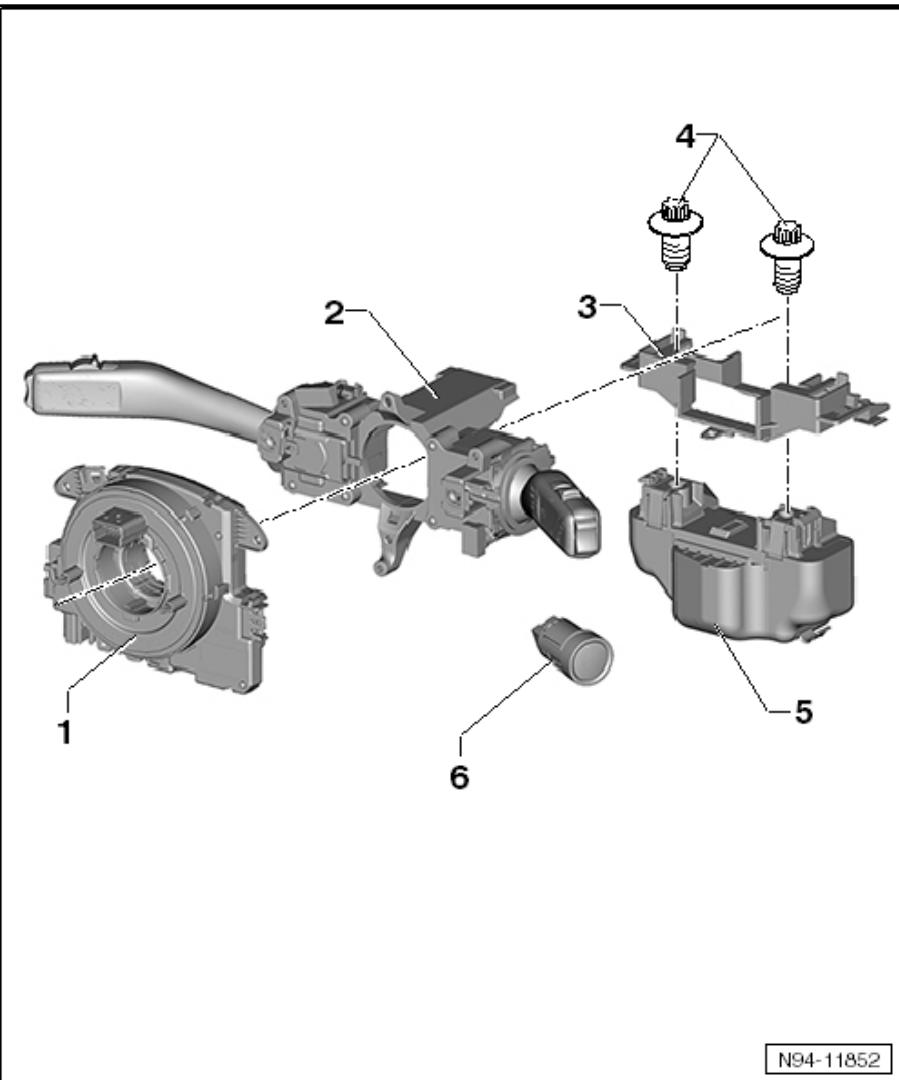
Remove together with the steering column switch mount.

- Follow the removing and installing sequence. Refer to [C5.13.1 column Switch Module Components, Sequence](#), page 277
- Removing and installing. Refer to [E5.13.9 Electronic Steering Column Lock Control Module J764](#), page 291 .
- Replacing. Refer to [E5.13.8 Electronic Steering Column Lock Control Module J764, Replacing](#), page 290 .

#### 6 - Access/Start Authorization Button -E378-

- Removing and installing. Refer to [S5.16.8 Start System Button E378](#), page 309 .

## 2.16 Keyless Access Authorization System Component Location





#### 1 - Antenna Contact Point Coverage Area

#### 2 - Interior Access/Start Authorization Antenna 1 -R138-

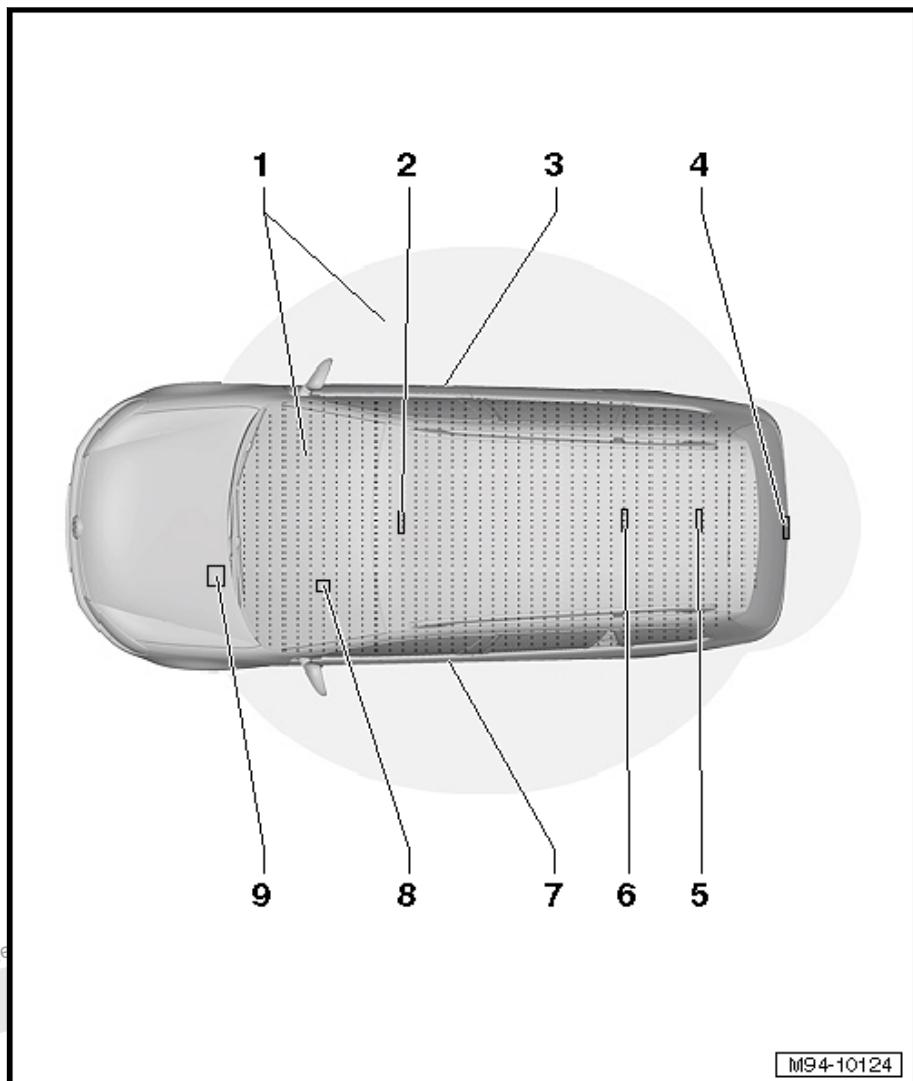
- Under the center console in front of the selector lever.
- Removing and installing. Refer to [A5.16.6 Access/Start System Antenna 1 In Vehicle InteriorR138](#), page 308 .
- Checking. Refer to [A4.4.5 Access/Start Authorization Antenna 1 In Vehicle InteriorR138, Checking](#), page 156 .

#### 3 - Front Passenger Exterior Door Handle

The following components are integrated in passenger side outside door handle:

- ◆ Front Passenger Exterior Door Handle Touch Sensor -G416-
- ◆ Passenger Side Access/Start Authorization Antenna -R135-

Exterior Door Handle, Removal and Installation, Front Passenger. Refer to [O5.16.2 Outside Door Handle](#), page 305 .



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- Checking Right Access/Start Authorization Antenna -R135-. Refer to [F4.4.2 Front Passenger Access/Start Authorization AntennaR135, Checking](#), page 155 .
- Checking the Front Passenger Exterior Door Handle Touch Sensor -G416-. Refer to [page 157](#) .

#### 4 - Access/Start Authorization Antenna in Rear Bumper -R136-

- Behind the bumper cover inside the rear lid
- Removing and installing. Refer to [A5.16.4 Access/Start Authorization Antenna In Rear BumperR136](#), page 306 .
- Checking. Refer to [A4.4.3 Access/Start Authorization Antenna In Rear BumperR136, Checking](#), page 155 .

#### 5 - Access/Start System Antenna in Luggage Compartment -R137-

- Inside the luggage compartment, in the center and in front of the spare wheel well
- Removing and installing. Refer to [A5.16.5 Access/Start Authorization Antenna in Luggage CompartmentR137](#), page 307 .
- Checking. Refer to [A4.4.4 Access/Start Authorization Antenna In Luggage CompartmentR137, Checking](#), page 155 .

#### 6 - Interior Access/Start Authorization Antenna 2 -R139-

- Underneath the rear seat bench
- Removing and installing. Refer to [A5.16.7 Access/Start System Antenna 2 In Vehicle InteriorR139](#), page 309 .
- Checking. Refer to [A4.4.6 Access/Start Authorization Antenna 2 In Vehicle InteriorR139, Checking](#), page 156 .



## 7 - Driver Side Outside Door Handle

The following components are integrated in driver side outside door handle:

- ◆ Driver Exterior Door Handle Touch Sensor -G415-
- ◆ Driver Side Rear Access/Start Authorization Antenna -R134-
  - Exterior Door Handle, Removal and Installation, Driver Side, refer to [⇒ O5.16.3 Outside Door Handle](#), page 306
  - Checking Left Access/Start Authorization Antenna -R134-. Refer to [⇒ D4.4.1 Driver Access/Start Authorization Antenna R134, Checking](#), page 154 .
  - Checking Driver Exterior Door Handle Touch Sensor -G415-. Refer to [⇒ D4.4.7 Driver Exterior Door Handle Touch Sensor G415, Checking](#), page 156 .

## 8 - Access/Start Authorization Button -E378-

- In the lower steering column trim.
- Removing and installing. Refer to [⇒ S5.16.8 Start System Button E378](#), page 309.

## 9 - Access/Start Authorization Control Module -J518-

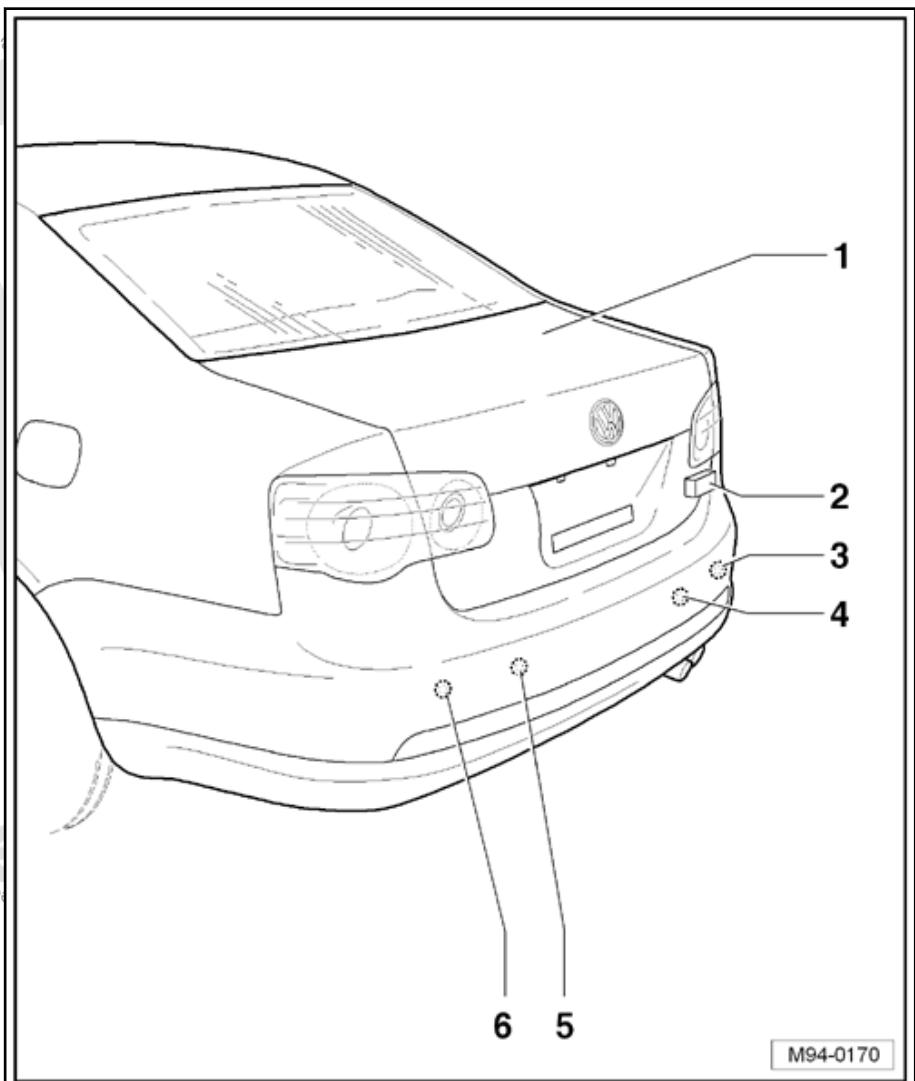
- Inside the driver footwell above the brake pedal.
- Removing and installing. Refer to [⇒ A5.16.1 Access/Start Authorization Control Module J518](#), page 304 .
- Coding. Refer to [⇒ , page 305](#).

## 2.17 Parking Aid Assembly, 4-Channel



### 1 - Rear Parking Aid Warning Buzzer -H15-

- Under the rear shelf (sedan)
- Behind the right luggage compartment side trim (wagon)
- Removal and Installation, Sedan, refer to [⇒ R5.17.9 ear Parking Aid Warning BuzzerH15, Sedan](#), page 324
- Wagon, Removal and Installation [⇒ R5.17.10 ear Parking Aid Warning BuzzerH15, Wagon](#), page 324



### 2 - Parking Aid Control Module -J446-

- Behind the right luggage compartment side trim panel (through 11/2008)
- Remove and install, Sedan (through November 2008), refer to [⇒ F5.17.15 front Parking Aid Warning BuzzerH22, Adjusting Tone](#), page 327
- Remove and install, Wagon (through November 2008), refer to [⇒ P5.17.2 arking Aid Control ModuleJ446, Wagon through 11/2008](#), page 312
- behind the instrument panel on the driver side above the relay panel (from December 2008)
- Remove and install (from December 2008), refer to [⇒ P5.17.3 arking Aid Control ModuleJ446](#), page 313
- Coding. Refer to [page 314](#).
- Adapting the optical illustration. Refer to [t5.17.4 he Optical Illustration](#), page 314 .

### 3 - Right Rear Center Parking Aid Sensor -G205-

- In rear bumper cover
- Removing and installing. Refer to [⇒ P5.17.5 arking Aid Sensor](#), page 315 .
- Replace the sensor and the sensor holder during repair work. Refer to [⇒ M5.17.7 ount in Bumper Cover, Repairing](#), page 320 .

### 4 - Right Rear Inner Parking Aid Sensor -G335-

- In rear bumper cover
- Removing and installing. Refer to [⇒ P5.17.5 arking Aid Sensor](#), page 315 .
- Replace the sensor and the sensor holder during repair work. Refer to [⇒ M5.17.7 ount in Bumper Cover, Repairing](#), page 320 .

### 5 - Left Rear Inner Parking Aid Sensor -G334-

- In rear bumper cover
- Removing and installing. Refer to [⇒ P5.17.5 arking Aid Sensor](#), page 315 .



- Replace the sensor and the sensor holder during repair work. Refer to [⇒ M5.17.7 Mount in Bumper Cover, Repairing", page 320](#).

#### 6 - Left Rear Center Parking Aid Sensor -G204-

- In rear bumper cover
- Removing and installing. Refer to [⇒ P5.17.5 Parking Aid Sensor", page 315](#).
- Replace the sensor and the sensor holder during repair work. Refer to [⇒ M5.17.7 Mount in Bumper Cover, Repairing", page 320](#).



##### Note

- ◆ Due to different software versions, different sensor names may be displayed in the first Parking Aid Control Module -J446- software version. If this is the case, the follow allocation applies:
  - ◆ Left Rear Center Parking Aid Sensor -G204- is Left Rear Parking Aid Sensor -G203-
  - ◆ Left Rear Inner Parking Aid Sensor -G334- is Left Rear Center Parking Aid Sensor -G204-
  - ◆ Right Rear Inner Parking Aid Sensor -G335- is Right Rear Center Parking Aid Sensor -G205-
  - ◆ Right Rear Center Parking Aid Sensor -G205- is Right Rear Parking Aid Sensor -G206-

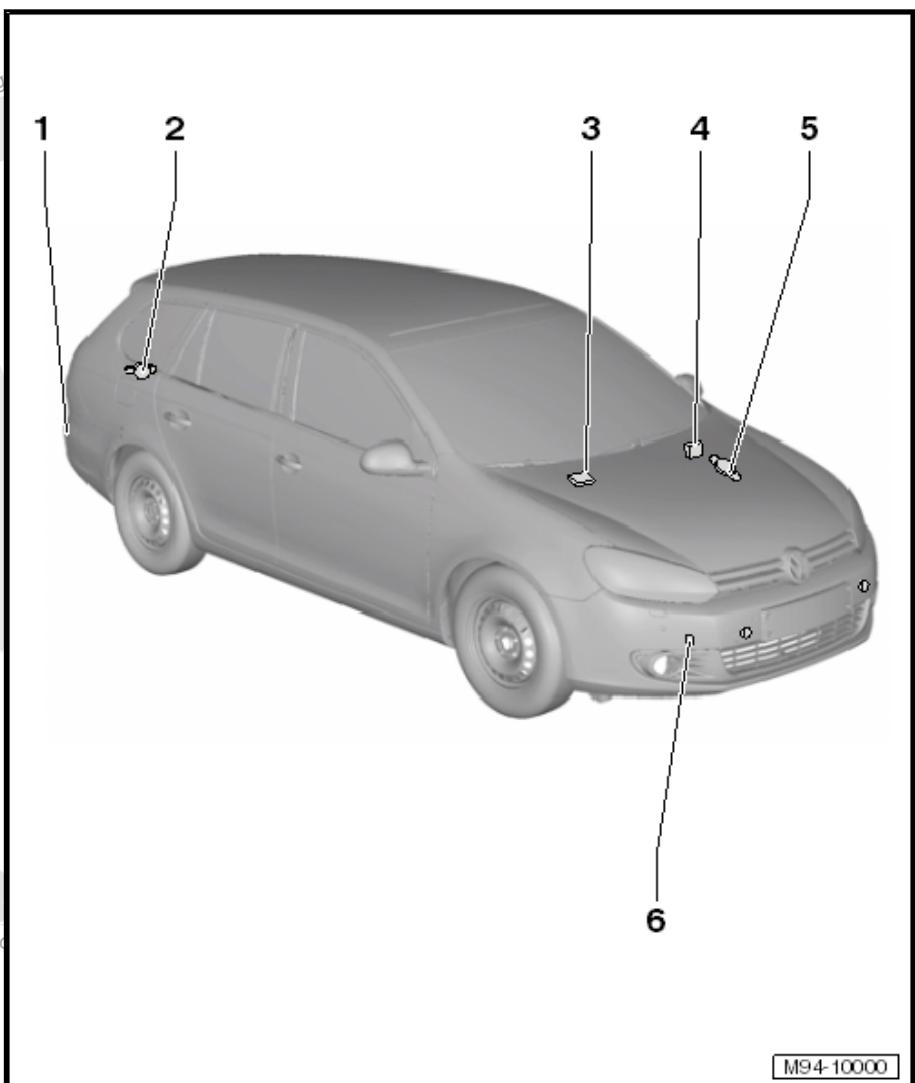
## 2.18 Parking Aid Assembly, 8-Channel





### 1 - Parking Aid Sensor in Rear Bumper Cover

- Left Rear Parking Aid Sensor -G203-
- Left Rear Center Parking Aid Sensor -G204-
- Right Rear Center Parking Aid Sensor - G205-
- Right Rear Parking Aid Sensor -G206-
- Removing and installing. Refer to [P5.17.5 arking Aid Sensor](#), page 315 .
- Checking. Refer to [A4.5.1 id Sensor, Checking](#), page 157 .
- Replacing. Refer to [A5.17.8 id Sensor, Painting](#), page 323 .
- Replace the sensor and the sensor holder during repair work. Refer to [M5.17.7 ount in Bumper Cover, Repairing](#), page 320 .



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### 2 - Rear Parking Aid Warning Buzzer -H15-

- Under the rear shelf (sedan)
- Behind the right luggage compartment side trim (wagon)
- Removal and Installation, Sedan, refer to [R5.17.9 ear Parking Aid Warning BuzzerH15, Sedan](#), page 324
- Wagon, Removal and Installation [R5.17.10 ear Parking Aid Warning BuzzerH15, Wagon](#), page 324
- Volume, Programming. Refer to [R5.17.11 ear Parking Aid Warning BuzzerH15, Adjusting Volume](#), page 325 .
- Adapting the tone. Refer to [R5.17.12 ear Parking Aid Warning BuzzerH15, Adjusting Tone](#), page 325 .

### 3 - Parking Aid Button -E266-

- In the center console in front of the selector lever
- Removing and installing. Refer to [i4.7.1 n Center Console Storage Compartment](#), page 393 .
- Checking. Refer to [P4.5.3 arking Aid ButtonE266, Checking](#), page 158 .

### 4 - Parking Aid Control Module -J446-

- Behind the instrument panel on the driver side above the relay panel
- Removal and Installation, LHD vehicle. Refer to [P5.17.3 arking Aid Control ModuleJ446](#) , page 313 .
- Coding. Refer to [, page 314](#) .
- Adapting the optical illustration. Refer to [t5.17.4 he Optical Illustration](#), page 314 .
- Output diagnostic test mode. Refer to [A4.5.2 id System Output Diagnostic Test Mode \(DTM\)](#), page 158 .

### 5 - Front Parking Aid Warning Buzzer -H22-

- Behind the instrument panel on the driver side on the relay panel



- Removing and installing. Refer to [⇒ F5.17.13 ront Parking Aid Warning BuzzerH22 ”, page 326](#).
- Volume, Programming. Refer to [⇒ F5.17.14 ront Parking Aid Warning BuzzerH22, Adjusting Volume”, page 326](#).
- Adapting the tone. Refer to [⇒ F5.17.15 ront Parking Aid Warning BuzzerH22, Adjusting Tone”, page 327](#).

## 6 - Parking Aid Sensor Inside The Front Bumper Cover

- Left Front Parking Aid Sensor -G255-
- Left Front Center Parking Aid Sensor -G254-
- Right Front Center Parking Aid Sensor -G253-
- Right Front Parking Aid Sensor -G252-
- Removing and installing. Refer to [⇒ P5.17.6 arking Aid Sensor”, page 317](#).
- Checking. Refer to [⇒ A4.5.1 id Sensor, Checking”, page 157](#).
- Replacing. Refer to [⇒ A5.17.8 id Sensor, Painting”, page 323](#).
- Replace the sensor and the sensor holder during repair work. Refer to [⇒ M5.17.7 ount in Bumper Cover, Repairing”, page 320](#).

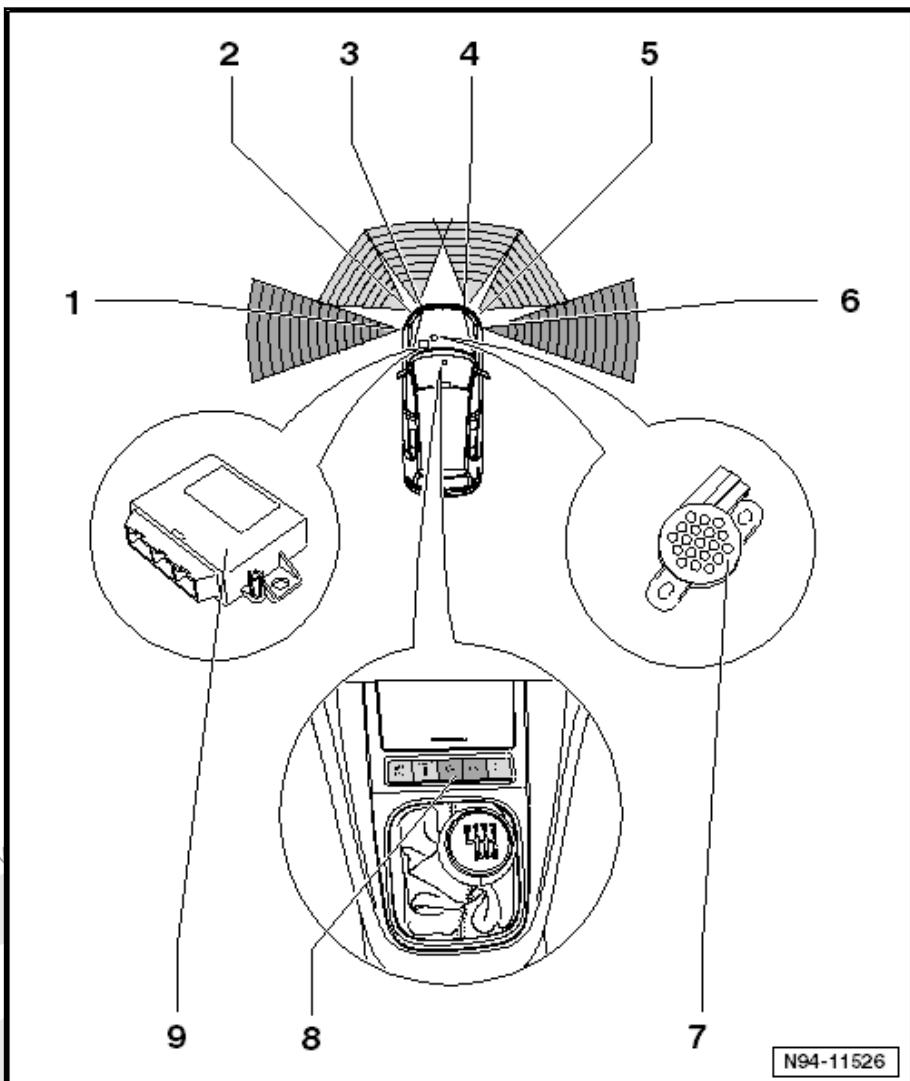
## 2.19 Parallel Parking Assist Overview





#### 1 - Left Front Parallel Parking Assistance Sensor -G568-

- In front bumper cover
- Removing and installing. Refer to [P5.18.2 arking Assistance Sensor](#), page 329 .
- Checking. Refer to [A4.6.3 id Sensor and Parallel Parking Assistance Sensors, Checking](#), page 159 .
- Replacing. Refer to [P5.18.3 arking Assistance Sensor, Painting](#), page 332 .
- Replace the sensor and the sensor holder during repair work. Refer to [M5.17.7 ount in Bumper Cover, Repairing](#), page 320 .



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#### 2 - Left Front Parking Aid Sensor -G255-

- In front bumper cover
- Removing and installing. Refer to [P5.18.2 arking Assistance Sensor](#), page 329 .
- Checking. Refer to [A4.6.3 id Sensor and Parallel Parking Assistance Sensors, Checking](#), page 159 .
- Replace the sensor and the sensor holder during repair work. Refer to [M5.17.7 ount in Bumper Cover, Repairing](#), page 320 .

#### 3 - Left Front Center Parking Aid Sensor -G254-

- In front bumper cover
- Removing and installing. Refer to [P5.18.2 arking Assistance Sensor](#), page 329 .
- Checking. Refer to [A4.6.3 id Sensor and Parallel Parking Assistance Sensors, Checking](#), page 159 .
- Replace the sensor and the sensor holder during repair work. Refer to [M5.17.7 ount in Bumper Cover, Repairing](#), page 320 .

#### 4 - Right Front Center Parking Aid Sensor -G253-

- In front bumper cover
- Removing and installing. Refer to [P5.18.2 arking Assistance Sensor](#), page 329 .
- Checking. Refer to [A4.6.3 id Sensor and Parallel Parking Assistance Sensors, Checking](#), page 159 .
- Replace the sensor and the sensor holder during repair work. Refer to [M5.17.7 ount in Bumper Cover, Repairing](#), page 320 .

#### 5 - Right Front Parking Aid Sensor -G252-

- In front bumper cover
- Removing and installing. Refer to [P5.18.2 arking Assistance Sensor](#), page 329 .



- Checking. Refer to [⇒ A4.6.3 id Sensor and Parallel Parking Assistance Sensors, Checking](#), page [159](#).
- Replace the sensor and the sensor holder during repair work. Refer to [⇒ page 320](#).

#### 6 - Right Front Parallel Parking Assistance Sensor -G569-

- In front bumper cover
- Removing and installing. Refer to [⇒ P5.18.2 arking Assistance Sensor](#), page [329](#).
- Checking. Refer to [⇒ A4.6.3 id Sensor and Parallel Parking Assistance Sensors, Checking](#), page [159](#).
- Replacing. Refer to [⇒ P5.18.3 arking Assistance Sensor, Painting](#), page [332](#).
- Replace the sensor and the sensor holder during repair work. Refer to [⇒ M5.17.7 ount in Bumper Cover, Repairing](#), page [320](#).

#### 7 - Front Parking Aid Warning Buzzer -H22-

- Behind the instrument panel on the driver side on the relay panel
- Removing and installing. Refer to [⇒ F5.18.4 ront Parking Aid Warning BuzzerH22](#), page [333](#).
- Volume, Programming. Refer to [⇒ F5.18.5 ront Parking Aid Warning BuzzerH22, Adjusting Volume](#), page [333](#).
- Adapting the tone. Refer to [⇒ F5.18.6 ront Parking Aid Warning BuzzerH22, Adjusting Tone](#), page [334](#).

#### 8 - Parking aid button -E266-/parallel parking assistance button -E581-

- In the center console in front of the selector lever
- Removing and installing. Refer to [⇒ I4.7.1 n Center Console Storage Compartment](#), page [393](#).
- Parallel parking assistance button -E581-, checking. Refer to [⇒ P4.6.4 arallel Parking Assistance ButtonE581, Checking](#), page [160](#)
- Parking aid button -E266-, checking, refer to [⇒ P4.6.2 arking Aid ButtonE266, Checking](#), page [159](#)

#### 9 - Parallel Parking Assistance Control Module -J791-

- Behind the instrument panel on the driver side above the relay panel
- Removal and Installation, LHD vehicle. Refer to [⇒ P5.18.1 arallel Parking Assistance Control Modu-leJ791](#), page [327](#).
- Coding. Refer to [⇒ , page 329](#).
- Output diagnostic test mode. Refer to [⇒ P4.6.1 arallel Parking Assistance Control ModuleJ791, Output Diagnostic Test Mode](#), page [158](#).

## 2.20

### High Beam Assist Component Location



### 1 - Automatic High Beam Assist Control Module -J844-

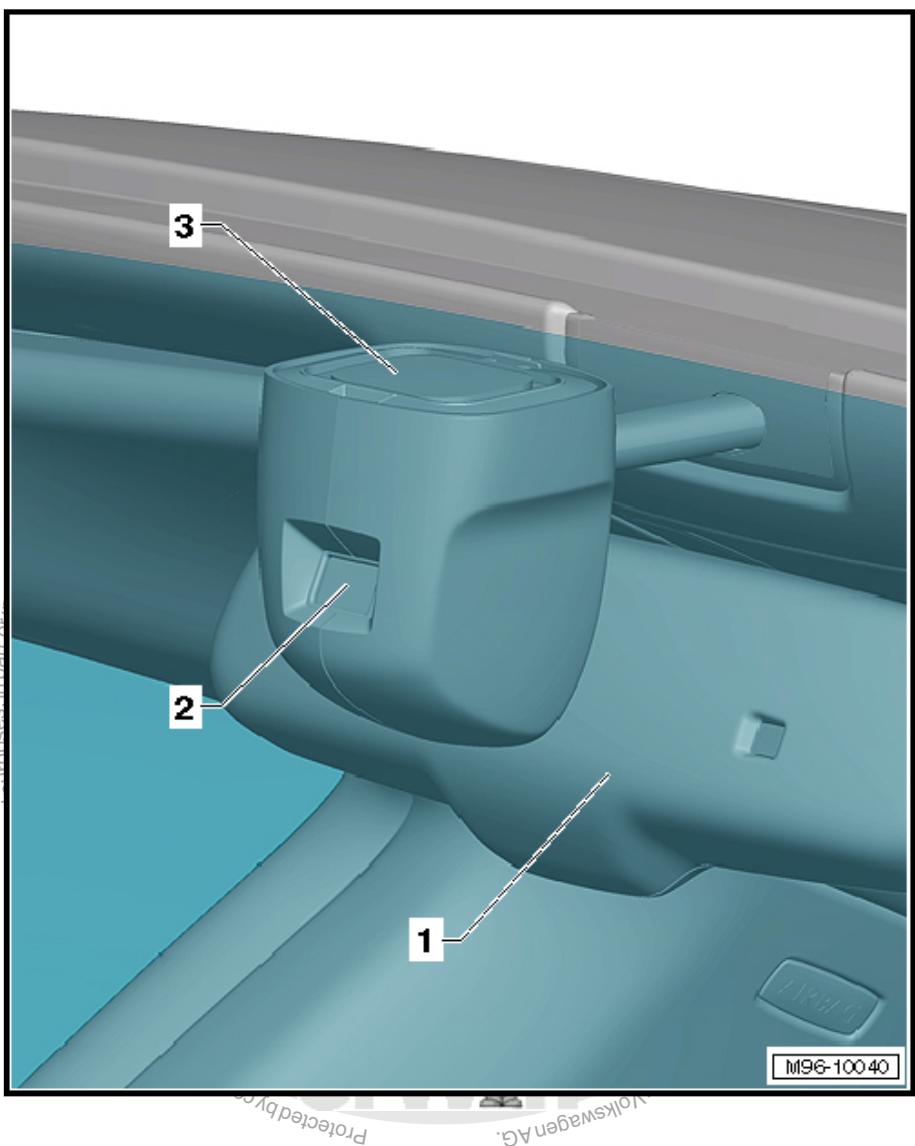
- Removing and installing. Refer to [A5.19.1 utomatic High Beam Control Modu-leJ844](#), page 335 .
- Replacing. Refer to [A5.19.2 utomatic High Beam Control Modu-leJ844](#), page 335 .
- Coding. Refer to [A5.19.3 ight Recognition SensorG399](#), page 336 .

### 2 - Light Recognition Sensor -G399-

- Removing and installing. Refer to [L5.19.3 ight Recognition SensorG399](#), page 336 .

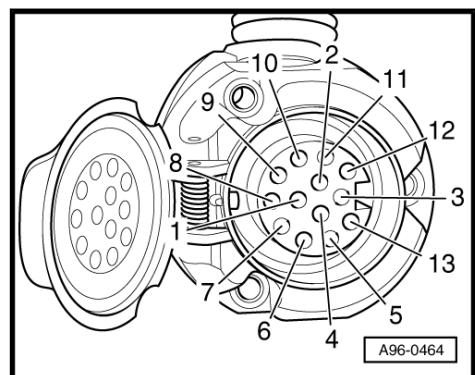
### 3 - Rain/light Recognition Sensor -G397-

- Removing and installing. Refer to [R4.5 ain/Light Recognition SensorG397](#), page 91 .



## 2.21 Trailer Socket -U10- connector assignment

### Trailer Socket -U10- connector assignment



1 - Terminal BL (Left turn signal)

2 - Terminal NSL (Rear Fog Lamp)

3 - Terminal 31



- 4 - Terminal BR (Right turn signal)
- 5 - Terminal 58R (Right Tail Lamp)
- 6 - Terminal 54 (Brake Lamp)
- 7 - Terminal 58L (Left Tail Lamp)
- 8 - Terminal RF (Back-Up Lamp)
- 9 - Terminal 15
- 10 - Reserved for Terminal 30
- 11 - Reserved for Terminal 31
- 12 - Not Assigned
- 13 - Terminal 31

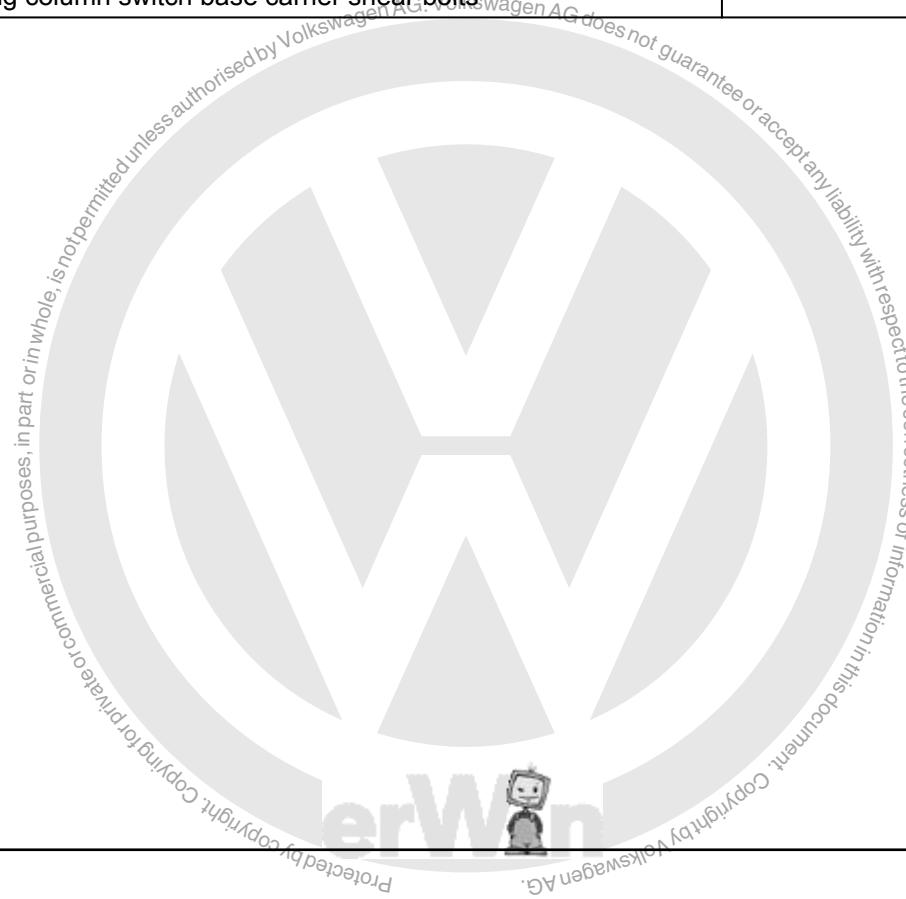


### 3 Specifications

**⇒ T3.1 Tightening Specifications", page 153**

#### 3.1 Fastener Tightening Specifications

Component	Fastener Size	Nm
Fog Lamp Housing Screw		
- Through MY 2009	-	1.5
- From MY 2010	-	2
Headlamp mounting repair tabs	-	1
Headlamp beam adjustment motor screw, HID through MY 2009	-	2
Halogen or HID headlamp mounting screw		
- Through MY 2009	-	4
- From MY 2010	-	5
Headlamp power output stage screw, HID from MY 2010	-	1.4
Headlamp range control module screw, HID from MY 2010	-	1.5
High-intensity gas discharge lamp control module screw, HID through MY 2009	-	2
HID headlamp ballast screw, HID from MY 2010	-	1.4
Parallel parking assistance control module	-	1.5
Parking aid control module	-	1.5
Rearview camera	-	6
Side panel tail lamp to body/rear lid nut	-	3.5
Steering column electronic systems control module screw, through 05.10	-	1
Steering column electronic systems control module screw, from 06.10	-	1.5
Steering column switch base carrier shear bolts	-	15





## 4 Diagnosis and Testing

- ⇒ [4.1 , page 154](#)
- ⇒ [C4.2 olumn Switch Module”, page 154](#)
- ⇒ [S4.3 itch and Lock Cylinder”, page 154](#)
- ⇒ [A4.4 uthorization Antennas and Sensors”, page 154](#)
- ⇒ [A4.5 id”, page 157](#)
- ⇒ [P4.6 arking Assist”, page 158](#)
- ⇒ [H4.7 itch”, page 160](#)

### 4.1 Headlamps

Refer to the corresponding headlamp chapter in [⇒ a5 nd Installation”, page 162](#).

### 4.2 Steering Column Switch Module

Refer to the corresponding steering column switch module chapter in [⇒ a5 nd Installation”, page 162](#).

### 4.3 Ignition Switch and Lock Cylinder

Refer to the corresponding Ignition Switch and lock cylinder chapter in [⇒ a5 nd Installation”, page 162](#).

### 4.4 Access/Start Authorization Antennas and Sensors

- ⇒ [D4.4.1 river Access/Start Authorization AntennaR134, Checking”, page 154](#)
- ⇒ [F4.4.2 ront Passenger Access/Start Authorization AntennaR135, Checking”, page 155](#)
- ⇒ [A4.4.3 ccess/Start Authorization Antenna In Rear BumperR136, Checking”, page 155](#)
- ⇒ [A4.4.4 ccess/Start Authorization Antenna In Luggage CompartmentR137, Checking”, page 155](#)
- ⇒ [A4.4.5 ccess/Start Authorization Antenna 1 In Vehicle InteriorR138, Checking”, page 156](#)
- ⇒ [A4.4.6 ccess/Start Authorization Antenna 2 In Vehicle InteriorR139, Checking”, page 156](#)
- ⇒ [D4.4.7 river Exterior Door Handle Touch SensorG415, Checking”, page 156](#)
- ⇒ [F4.4.8 ront Passenger Exterior Door Handle Touch SensorG416, Checking”, page 157](#)

#### 4.4.1 Driver Access/Start Authorization Antenna -R134-, Checking

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select [Guided Fault Finding](#).
- Use the [GO TO](#) button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures



- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 05 - Access/start authorization
- ◆ Electrical Components
- ◆ R134 - driver access/start authorization antenna

#### 4.4.2 Front Passenger Access/Start Authorization Antenna -R135-, Checking

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 05 - Access/start authorization
  - ◆ Electrical Components
  - ◆ R135 - Front passenger access/start authorization antenna

#### 4.4.3 Access/Start Authorization Antenna In Rear Bumper -R136-, Checking

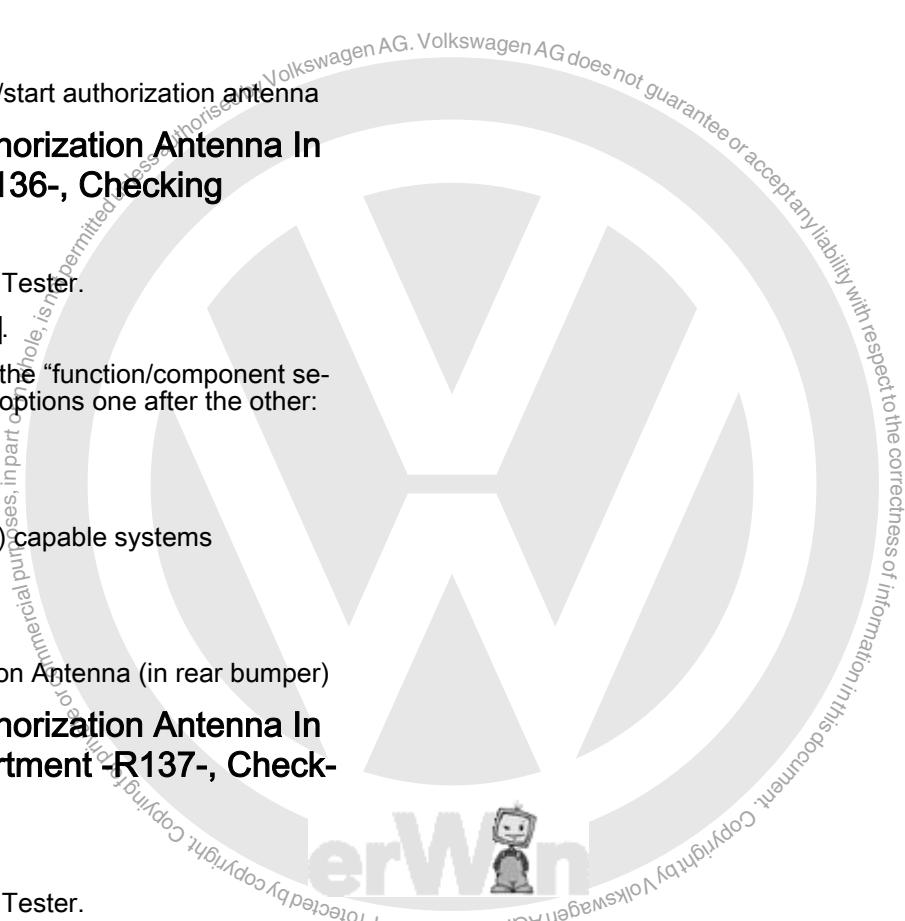
##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 05 - Access/start authorization
  - ◆ Electrical Components
  - ◆ R136 - Access/Start Authorization Antenna (in rear bumper)

#### 4.4.4 Access/Start Authorization Antenna In Luggage Compartment -R137-, Checking

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 05 - Access/start authorization





- ◆ Electrical Components
- ◆ R137 - Luggage Compartment Access/Start Authorization Antenna

#### 4.4.5 Access/Start Authorization Antenna 1 In Vehicle Interior -R138-, Checking

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 05 - Access/start authorization
  - ◆ Electrical Components
  - ◆ R138 - Interior Access/Start Authorization Antenna 1

#### 4.4.6 Access/Start Authorization Antenna 2 In Vehicle Interior -R139-, Checking

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 05 - Access/start authorization
  - ◆ Electrical Components
  - ◆ R139 - access/start authorization antenna 2 in vehicle interior

#### 4.4.7 Driver Exterior Door Handle Touch Sensor -G415-, Checking

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 05 - Access/start authorization
  - ◆ Electrical Components
  - ◆ G415 - driver exterior door handle touch sensor



#### 4.4.8 Front Passenger Exterior Door Handle Touch Sensor -G416-, Checking

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 05 - Access/start authorization
  - ◆ Electrical Components
  - ◆ G416 - Front passenger exterior door handle touch sensor

### 4.5 Parking Aid

⇒ [A4.5.1 id Sensor, Checking”, page 157](#)

⇒ [A4.5.2 id System Output Diagnostic Test Mode \(DTM\)”, page 158](#)

⇒ [P4.5.3 arking Aid ButtonE266, Checking”, page 158](#)

#### 4.5.1 Parking Aid Sensor, Checking

This function can be used to check the following components via the Parking Aid Control Module -J446-:

- ◆ Left Front Parking Aid Sensor -G255-
- ◆ Left Front Center Parking Aid Sensor -G254-
- ◆ Right Front Center Parking Aid Sensor -G253-
- ◆ Right Front Parking Aid Sensor -G252-
- ◆ Left Rear Parking Aid Sensor -G203-
- ◆ Left Rear Center Parking Aid Sensor -G204-
- ◆ Right Rear Center Parking Aid Sensor -G205-
- ◆ Right Rear Parking Aid Sensor -G206-

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 10 - Parking aid 2 J446
  - ◆ Electrical Components
  - ◆ Parking aid sensor





## 4.5.2 Parking Aid System Output Diagnostic Test Mode (DTM)

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 10 - Parking aid 2 J446
  - ◆ Parking aid 2 functions
  - ◆ Output Diagnostic Test Mode

## 4.5.3 Parking Aid Button -E266-, Checking

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 10 - Parking aid 2 J446
  - ◆ Electrical Components
  - ◆ Parking Aid Button

## 4.6 Parallel Parking Assist

⇒ [P4.6.1 Parallel Parking Assistance Control Module J791, Output Diagnostic Test Mode](#), page 158

⇒ [P4.6.2 Parking Aid Button E266, Checking](#), page 159

⇒ [A4.6.3 id Sensor and Parallel Parking Assistance Sensors, Checking](#), page 159

⇒ [P4.6.4 Parallel Parking Assistance Button E581, Checking](#), page 160

## 4.6.1 Parallel Parking Assistance Control Module -J791-, Output Diagnostic Test Mode

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems



- ◆ 10 - parallel parking assistance J791
- ◆ parallel parking assistance functions
- ◆ Output Diagnostic Test Mode

#### 4.6.2 Parking Aid Button -E266-, Checking

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 10 - parallel parking assistance J791
  - ◆ Electrical Components
  - ◆ Parking Aid Button

#### 4.6.3 Parking Aid Sensor and Parallel Park- ing Assistance Sensors, Checking

The following components can be checked with this function via the Parallel Parking Assistance Control Module -J791-:

- ◆ Left Rear Parking Aid Sensor -G203-
- ◆ Left Rear Center Parking Aid Sensor -G204-
- ◆ Right Rear Center Parking Aid Sensor -G205-
- ◆ Right Rear Parking Aid Sensor -G206-
- ◆ Left Front Parallel Parking Assistance Sensor -G568-
- ◆ Left Front Parking Aid Sensor -G255-
- ◆ Left Front Center Parking Aid Sensor -G254-
- ◆ Right Front Center Parking Aid Sensor -G253-
- ◆ Right Front Parking Aid Sensor -G252-
- ◆ Right Front Parallel Parking Assistance Sensor -G569-

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 10 - parallel parking assistance J791
  - ◆ Electrical Components
  - ◆ Parking Aid Sensor and Parallel Parking Assistance Sensors



#### 4.6.4 Parallel Parking Assistance Button - E581-, Checking

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 10 - parallel parking assistance J791
  - ◆ Electrical Components
  - ◆ Parallel Parking Assistance Button

#### 4.7 Trailer Hitch

⇒ [T4.7.1 Towing Recognition Control Module J345, Output Diagnostic Test Mode, through MY 2009](#), page 160

⇒ [T4.7.2 Towing Recognition Control Module J345, Output Diagnostic Test Mode Lamps, from MY 2010](#), page 160

#### 4.7.1 Towing Recognition Control Module - J345-, Output Diagnostic Test Mode, through MY 2009

The wiring guides for the Towing Recognition Control Module -J345- to the Trailer Socket -U10- are checked with this test.

##### Special tools and workshop equipment required

- ◆ Power Outlet Tester -V.A.G 1537/A-

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Towing sensor
  - ◆ Functions
  - ◆ Towing recognition control module output diagnostic test

#### 4.7.2 Towing Recognition Control Module - J345-, Output Diagnostic Test Mode Lamps, from MY 2010

The wiring guides for the Towing Recognition Control Module -J345- to the Trailer Socket -U10- are checked with this test.

##### Special tools and workshop equipment required

- ◆ Trailer Socket Tester -VAS 5800-



## Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 69 - Towing recognition J345
  - ◆ Towing recognition functions
  - ◆ Output diagnostic test mode bulbs



## 5 Removal and Installation

- ⇒ [H5.1 eadlamps, through MY 2009", page 162](#)
- ⇒ [H5.2 eadlamps, from MY 2010", page 185](#)
- ⇒ [H5.3 eadlamps, through MY 2009", page 204](#)
- ⇒ [H5.4 eadlamps and Cornering Lamp, from MY 2010", page 223](#)
- ⇒ [L5.5 amp", page 237](#)
- ⇒ [R5.6 earview Mirror Lamps", page 240](#)
- ⇒ [M5.7 arker Lamps in Front Bumper", page 243](#)
- ⇒ [L5.8 amps", page 244](#)
- ⇒ [P5.9 late Lamp", page 250](#)
- ⇒ [B5.10 rake Lamp", page 252](#)
- ⇒ [C5.11 olumn Switch Module, through 05/2010", page 255](#)
- ⇒ [C5.12 olumn Switch Module, from 06/2010", page 264](#)
- ⇒ [C5.13 olumn Switch Module, KESSY", page 277](#)
- ⇒ [S5.14 itch and Lock Cylinder, through 05/2010", page 292](#)
- ⇒ [S5.15 itch and Lock Cylinder, from 06/2010", page 297](#)
- ⇒ [A5.16 uthorization", page 304](#)
- ⇒ [A5.17 id", page 311](#)
- ⇒ [P5.18 arking Assist", page 327](#)
- ⇒ [H5.20 itch", page 337](#)

### 5.1 Halogen Headlamps, through MY 2009

- ⇒ [5.1.1 , page 162](#)
- ⇒ [I5.1.2 nstalled Position, Adjusting", page 164](#)
- ⇒ [B5.1.3 eam Headlamp Bulb", page 166](#)
- ⇒ [B5.1.4 eam Headlamp Bulb", page 168](#)
- ⇒ [L5.1.5 amp Bulb", page 170](#)
- ⇒ [T5.1.6 urn Signal Bulb", page 172](#)
- ⇒ [B5.1.7 eam Adjustment Motor, Removal and Installation, Au-tomotive Lighting", page 173](#)
- ⇒ [B5.1.8 eam Adjustment Motor, Removal and Installation, Hel-la", page 177](#)
- ⇒ [B5.1.9 eam Adjustment Motor, Removal and Installation, Vis-teon", page 179](#)
- ⇒ [M5.1.10 ounting Tabs, Servicing", page 181](#)

#### 5.1.1 Headlamp



Note

*Removing and installing the left headlamp is shown in the illus-trations. Removing and installing the right headlamp is identical.*

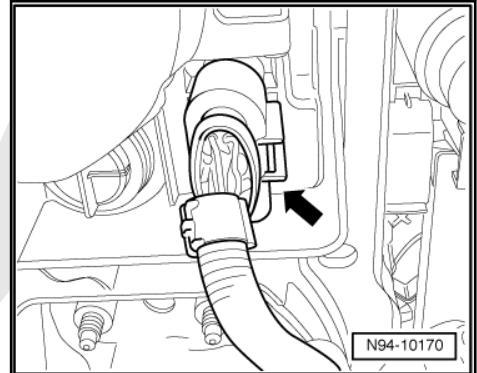


### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

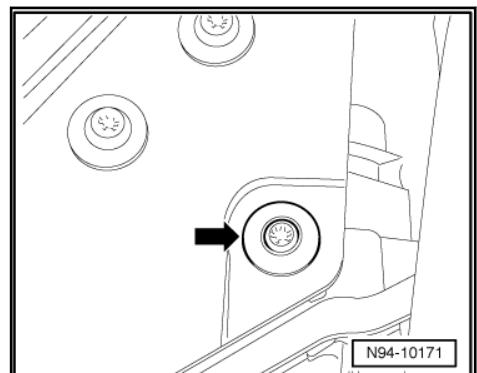
### Removing

- Disconnect the connector -arrow- from the headlamp.



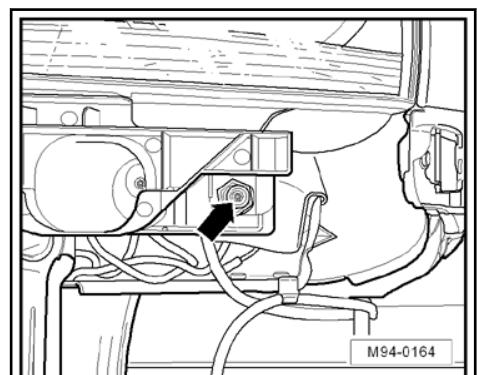
N94-10170

- Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Removal and Installation.
- Remove the screw -arrow- from the upper headlamp.



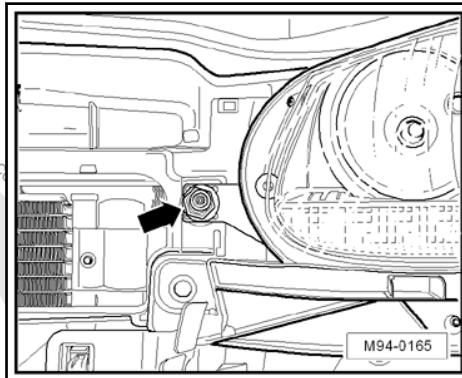
N94-10171

- Remove the screw -arrow- from the left lower headlamp.



M94-0164

- Remove the screw -arrow- from the right lower headlamp.



## Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specifications. Refer to [⇒ O2.1 verview, Halogen, through MY 2009](#), [page 123](#).
- Check and correct the headlamp position and make sure the gap dimensions are even. Refer to [⇒ 15.1.2 nstalled Position, Adjusting](#), [page 164](#).
- Check headlamp for functions.
- Headlamp Adjustment, Checking and Headlamp, Adjusting. Refer to Maintenance Manual.

### 5.1.2 Headlamp Installed Position, Adjusting

When checking the installation position of the headlamp, if the gaps between the headlamp and body are uneven, the installation position must be corrected.

It is not necessary to remove the front bumper to aim the headlamps.



Note

*Illustrations depict left headlamp.*

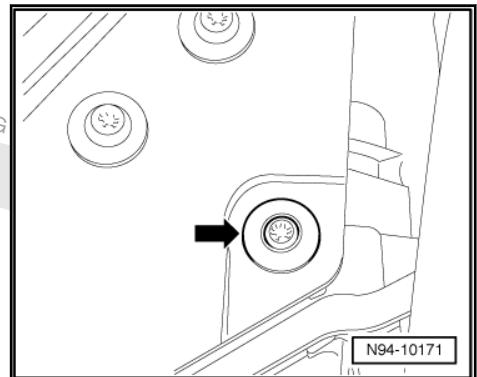


#### Caution

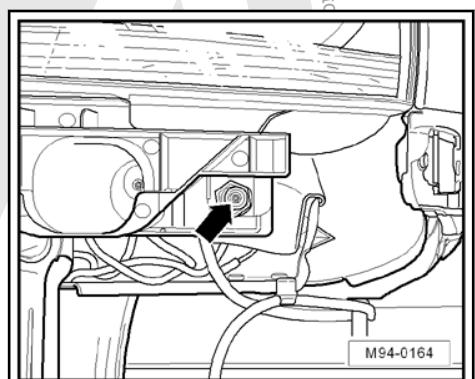
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

#### Procedure

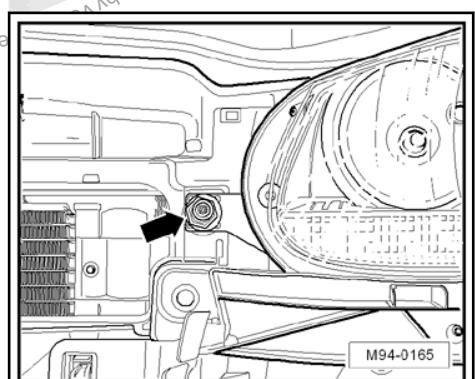
- Remove the radiator grille. Refer to ⇒ Body Exterior; Rep. Gr. 66; Description and Operation.
- Loosen the screw -arrow- on the top of the headlamp.



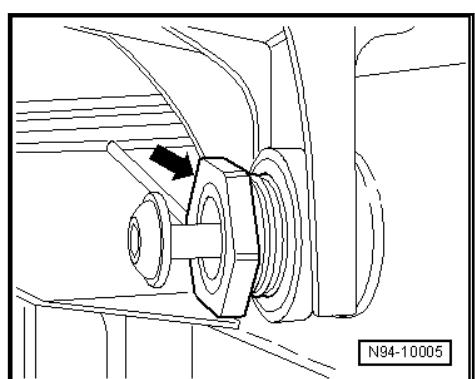
- Loosen the screw -arrow- on the bottom of the headlamp on the left side.



- Loosen the screw -arrow- on the bottom of the headlamp on the right side.



- Turn the adjusting bushing -arrow- on the front of the headlamp to adjust the headlamp so that it is flush with the vehicle body.





- Tighten the threaded connections to the tightening specifications. Refer to ⇒ [O2.1 verview, Halogen, through MY 2009](#), [page 123](#).
- Check and correct the headlamp position and make sure the gap dimensions are even.
- Install the radiator grille. Refer to ⇒ Body Exterior; Rep. Gr. 66; Description and Operation.
- Check headlamp for functions.
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

### 5.1.3 Low Beam Headlamp Bulb



#### Caution

- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***
- ◆ ***During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.***



#### Note

- ◆ ***It is not necessary to remove the headlamp when replacing the headlamp bulb.***
- ◆ ***The following figures show the replacement of the left headlamp bulb.***

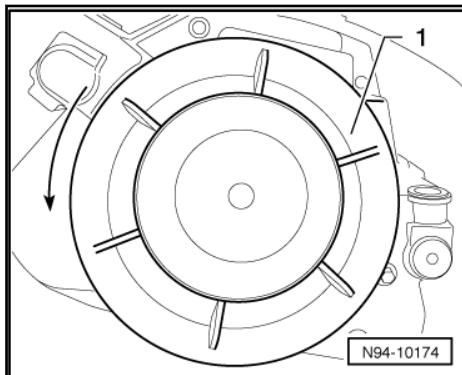


#### Caution

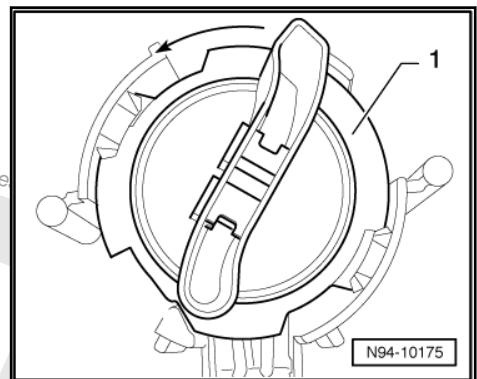
- ◆ ***Turn off the ignition and all electrical equipment.***
- ◆ ***Remove the key.***

#### Removing

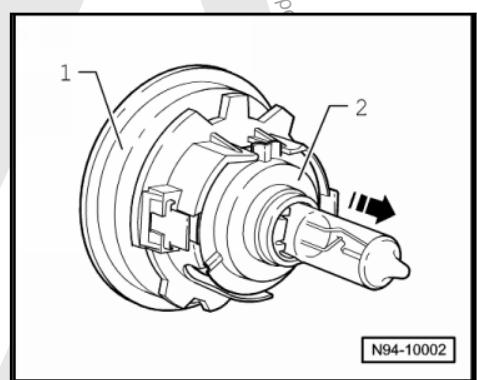
- Remove the cap -1- in the direction of the -arrow-.



- Turn the bulb socket and Left Low Beam Headlamp Bulb -M29- -1- in the direction of the -arrow- and remove the headlamp.



- Remove the Left Low Beam Headlamp Bulb -M29- -2- from the bulb socket -1- in the direction of the -arrow-.



Bulb: H7 12 V/55 W

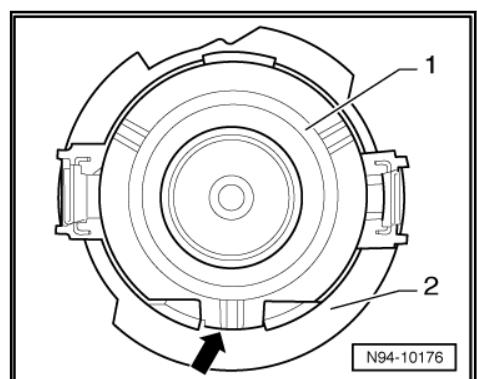
### Installing



#### Caution

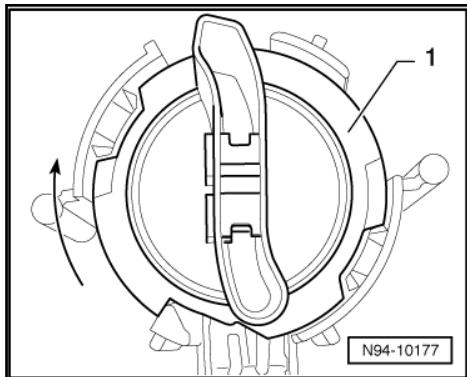
- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***
- ◆ ***During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.***

- Install the Left Low Beam Headlamp Bulb -M29- -1- into the bulb socket so that the pin on the Left Low Beam Headlamp Bulb -M29- fits into the recess -arrow- on the bulb socket -2-.

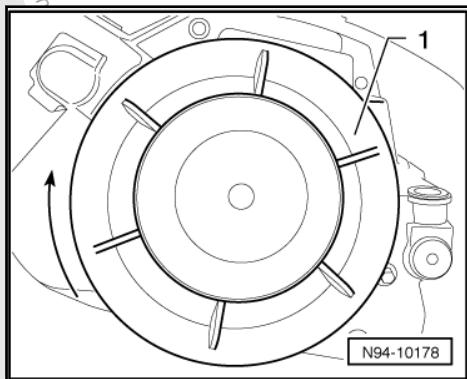




- Insert the bulb socket and Left Low Beam Headlamp Bulb -M29- -1- into the headlamp and then turn the Left Low Beam Headlamp Bulb -M29- in the direction of the -arrow-.



- Insert the cap -1- into the opening in the headlamp and turn it in the direction of the -arrow-.



- Check headlamp for functions.
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

### 5.1.4 High Beam Headlamp Bulb



#### Caution

- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***
- ◆ ***During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.***



#### Note

- ◆ ***It is not necessary to remove the headlamp when replacing the headlamp bulb.***
- ◆ ***The following figures show the replacement of the left headlamp bulb.***

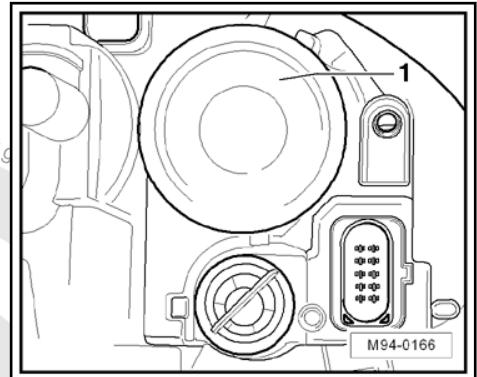


### Caution

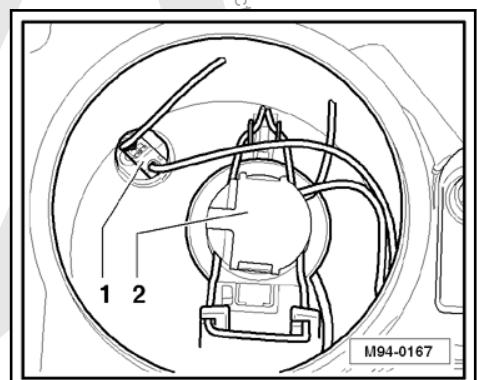
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

### Removing

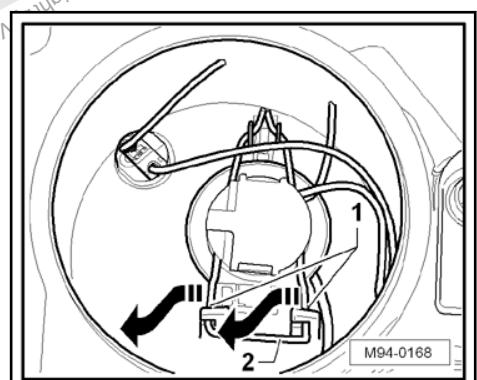
- Remove the cap -1-.



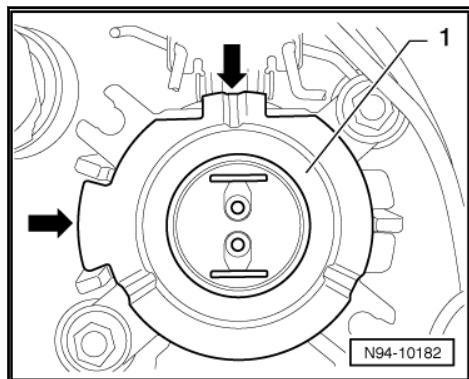
- Disengage the connector -2- and disconnect.



- Push the spring clip -2- in the direction of the -arrow- under the tabs -1- and open the spring clip -2-.



- Remove the Left High Beam Headlamp Bulb -M30- -1- from the headlamp.



Bulb: H7U 12V, 55 W

### Installing

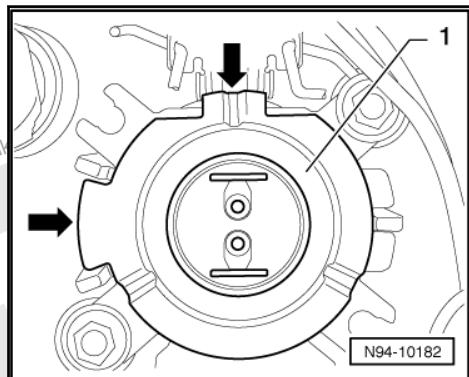


#### Caution

- ◆ **Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.**
- ◆ **During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.**

Install in reverse order of removal. Note the following:

- Insert the Left High Beam Headlamp Bulb -M30- -1- into the headlamp -arrows-.



- Check headlamp for functions.
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

### 5.1.5 Parking Lamp Bulb



#### Caution

- ◆ **Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.**
- ◆ **During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.**



Note

- ◆ It is not necessary to remove the headlamp when replacing the headlamp bulb.
- ◆ The following figures show the replacement of the left headlamp bulb.

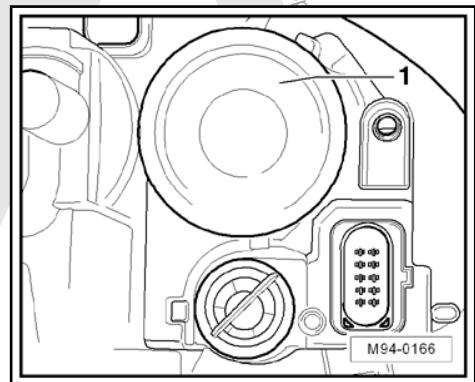


Caution

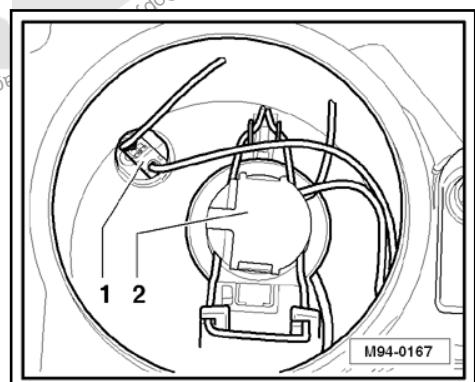
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

Removing

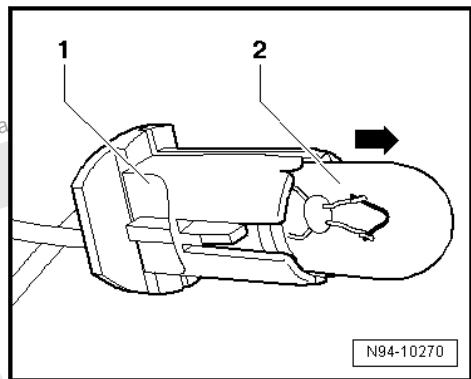
- Remove the cap -1-



- Remove the bulb socket -1- and Left Side Marker Lamp Bulb -M1- from the reflector.



- Remove the Left Parking Lamp Bulb -M1- -2- from the bulb socket -1- in the direction of the -arrow-.



Bulb: 12 V/5 W

### Installing



#### Caution

- ◆ **Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.**
- ◆ **During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.**

Install in reverse order of removal. Note the following:

- Check headlamp for functions.

### 5.1.6 Front Turn Signal Bulb



#### Caution

- ◆ **Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.**
- ◆ **During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.**



#### Note

- ◆ **It is not necessary to remove the headlamp when replacing the headlamp bulb.**
- ◆ **The following figures show the replacement of the left headlamp bulb.**



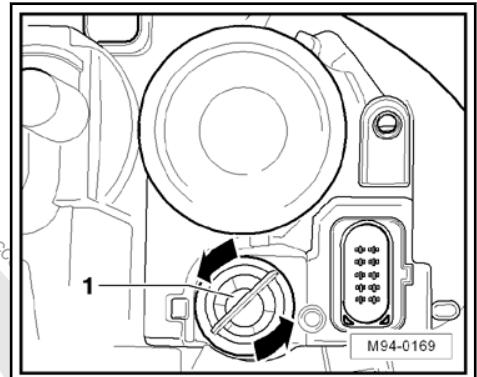
#### Caution

- ◆ **Turn off the ignition and all electrical equipment.**
- ◆ **Remove the key.**



## Removing

- Turn the bulb socket and Left Front Turn Signal Bulb -M5-1- in the direction of the -arrow- and remove them from the headlamp.



- Press the Left Front Turn Signal Bulb -M5- into the bulb socket, turn it counter-clockwise and remove the Left Front Turn Signal Bulb -M5- from the bulb socket.

Bulb 12 V/21 W

## Installing



### Caution

- Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.
- During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.

Install in reverse order of removal. Note the following:

- Check headlamp for functions.

### 5.1.7 Headlamp Beam Adjustment Motor, Removal and Installation, Automotive Lighting

If the motors are removed and installed, check the headlamp position and adjust it if necessary. Refer to Maintenance Manual.

The illustrations show replacing on a left headlamp. Contrary to the following illustrations, there are 2 openings with breaking points that must be opened to gain access to the screws.

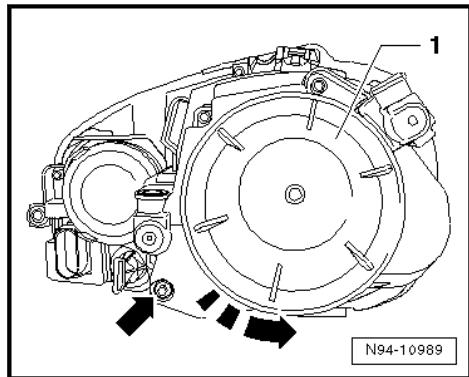


### Caution

- Turn off the ignition and all electrical equipment.
- Remove the key.

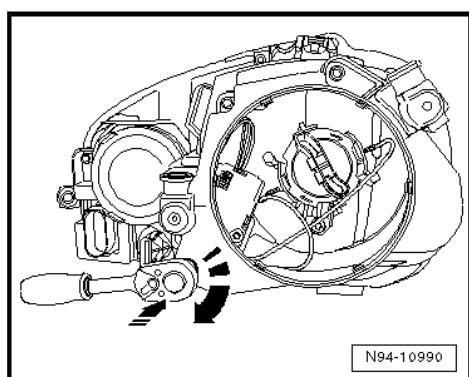
## Removing

- Remove the headlamp. Refer to [5.1.1, page 162](#).
- Remove the cap -1- in the direction of the -arrow-.



In order to reach the second bolt for the Left Headlamp Beam Adjustment Motor -V48-, create an assembly opening on the backside of the headlamp housing. This assembly opening must be sealed off with plugs (ordered separately) after completing the work.

- Attach the socket wrench to the plastic head on the back of the headlamp housing.

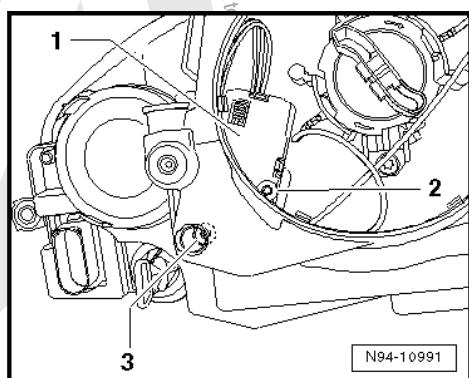


- Press and turn plastic hex head out of headlamp housing to break out assembly opening.

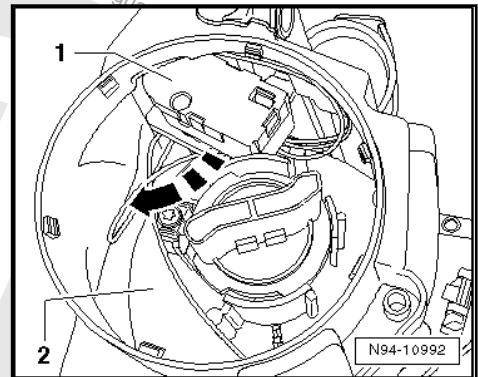
**Note**

*The locking piece broken out must not remain in headlamp. It must be removed from the headlamp housing.*

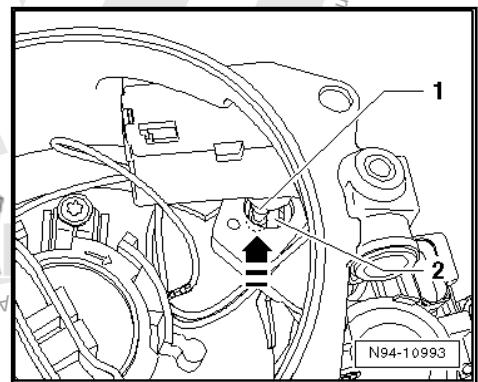
- Remove the screws -2- and -3- from the Right Headlamp Beam Adjustment Motor -V49- -1-.



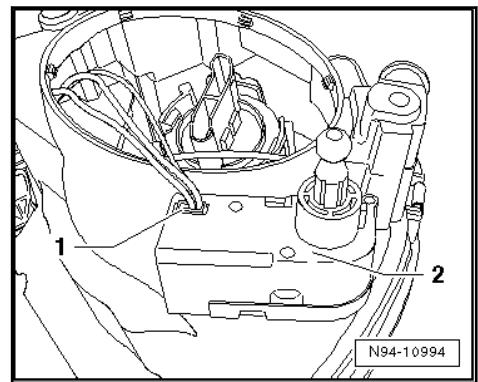
- Lift the headlamp reflector for the low beam -2- slightly and turn the Right Headlamp Beam Adjustment Motor -V49- -1- all the way in the direction of the -arrow-.



- Lift the headlamp reflector for the low beam slightly and tilt the ball head for the Right Headlamp Beam Adjustment Motor -V49- -1- so that it can be removed in the v out from the ball head mount -2- toward the rear.



- Remove the Right Headlamp Beam Adjustment Motor -V49- from the headlamp.
- Disengage the connector -1- and disconnect.

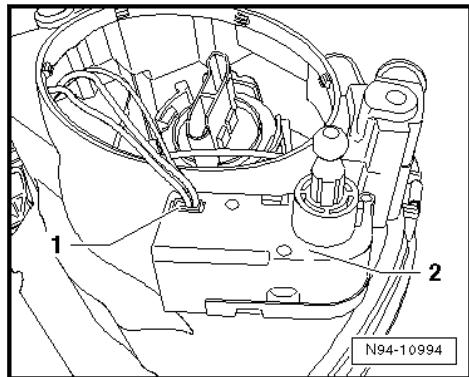


- Remove the Right Headlamp Beam Adjustment Motor -V49- -2-.

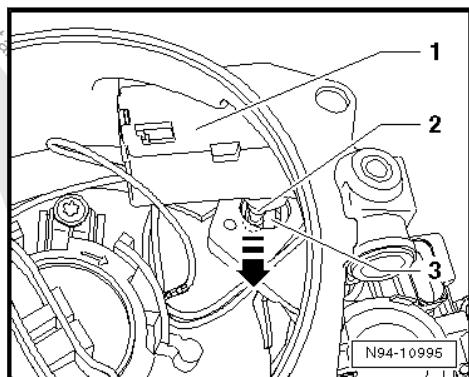
### Installing

Install in reverse order of removal. Note the following:

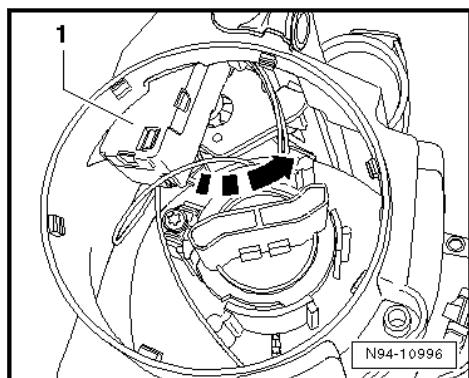
- Connect the connector -1- to the Right Headlamp Beam Adjustment Motor -V49- -2-.



- Insert the Right Headlamp Beam Adjustment Motor -V49- -1- into the headlamp in the position shown in the illustration.



- Lift the headlamp reflector for the low beam slightly and tilt the ball head for the Right Headlamp Beam Adjustment Motor -V49- -2- so that it can be inserted the direction of the -arrow- into the ball head mount -3-.
- Lift the headlamp reflector for the low beam slightly and turn the ball head for the Right Headlamp Beam Adjustment Motor -V49- -1- the direction of the -arrow- all the way till it stops.



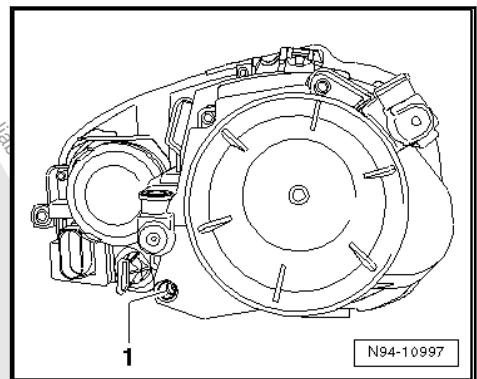
- Install the screws in the Right Headlamp Beam Adjustment Motor -V49- and then install the cap.



**Caution**

*During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.*

- Seal the assembly opening -1- with plugs (ordered separately). Refer to Parts Catalog.



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Check headlamp for functions.

Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

### 5.1.8 Headlamp Beam Adjustment Motor, Removal and Installation, Hella

If the motors are removed and installed, check the headlamp position and adjust it if necessary. Refer to Maintenance Manual.



#### Note

The illustrations show replacing on a right headlamp.

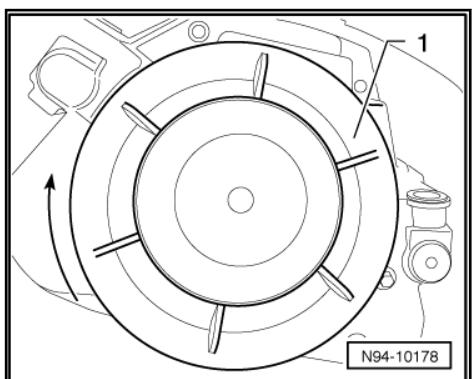


#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

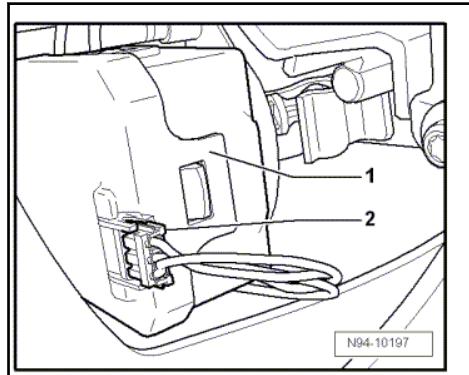
#### Removing

- Remove the headlamp. Refer to [5.1.1, page 162](#).
- Remove the cap -1- in the direction of the -arrow-.

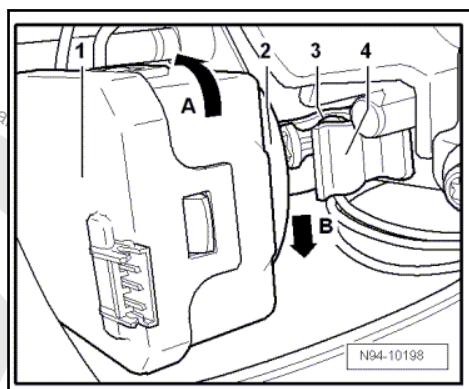


N94-10178

- Disengage the connector -2- and disconnect.



- Turn the Right Headlamp Beam Adjustment Motor -V49- -1- in the direction of -arrow A- and pull it slightly out of the mount -2-.

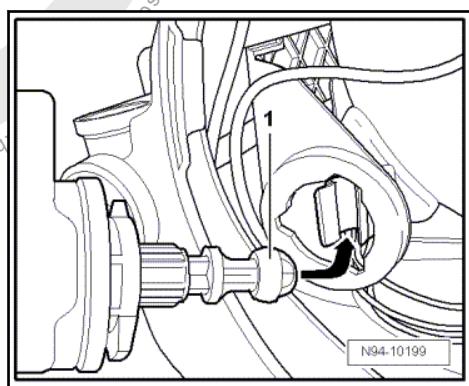


- Move the Right Headlamp Beam Adjustment Motor -V49- -1- so that the ball head -3- can be removed in the direction of arrow B from the ball head mount -4-.
- Remove the Right Headlamp Beam Adjustment Motor -V49- from the headlamp.

#### Installing

Install in reverse order of removal. Note the following:

- Carefully insert the ball head -1- into the ball head guide -arrow-.



#### Caution

*During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.*



- Check headlamp for functions.
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

### 5.1.9 Headlamp Beam Adjustment Motor, Removal and Installation, Visteon

If the motors are removed and installed, check the headlamp position and adjust it if necessary. Refer to Maintenance Manual.



*The illustrations show replacing on a left headlamp.*

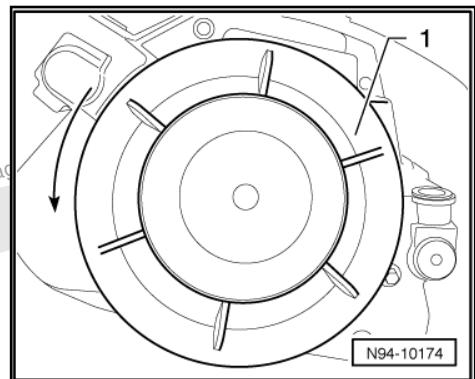


#### Caution

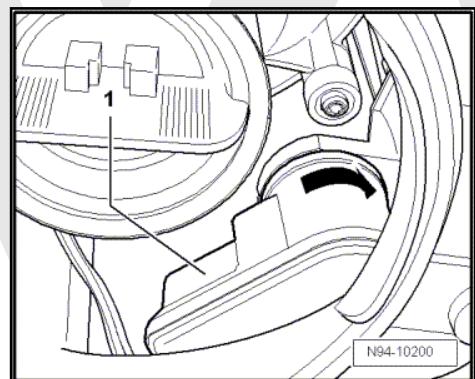
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

#### Removing

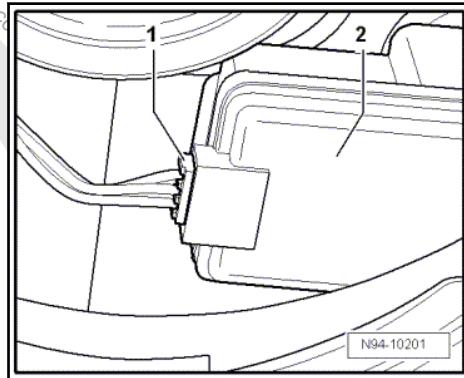
- Remove the headlamp. Refer to [5.1.1 , page 162](#).
- Remove the cap -1- in the direction of the -arrow-.



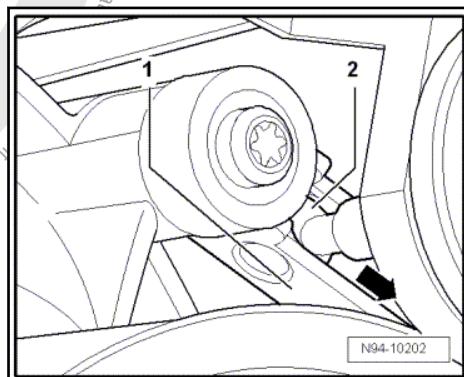
- Turn the Left Headlamp Beam Adjustment Motor -V48- -1- in the direction of the -arrow-.



- Disengage the connector -1- and disconnect.



- Move the Right Headlamp Beam Adjustment Motor -V49- -1- so that the ball head -2- can be removed in the direction of the arrow- from the ball head mount -1-.

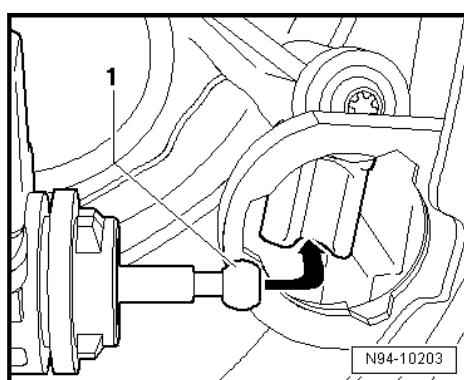


- Remove the Left Headlamp Beam Adjustment Motor -V48- from the headlamp.

### Installing

Install in reverse order of removal. Note the following:

- Carefully insert the ball head -1- into the ball head guide -arrow-.



#### Caution

*During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.*

- Check headlamp for functions.
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.



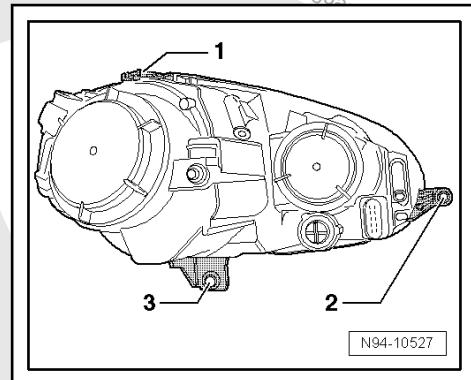
## 5.1.10 Headlamp Mounting Tabs, Servicing

### Special tools and workshop equipment required

- ◆ Torque Screwdriver -V.A.G 1624-

If one or more headlamp mounting tabs are damaged or broken off, they can be replaced by installing the repair set. It is not necessary to replace the entire headlamp.

### Installed location - repair tabs overview



- 1 - Upper repair tab
- 2 - Outer Lug
- 3 - Lower Lug



#### Note

- ◆ Check whether there is no further damage on the headlamp that makes installation of the repair set superfluous.
- ◆ There are two different repair kits for left and right headlamps. Refer to the Parts Catalog.
- ◆ Each repair set respectively contains the upper, the outer and the lower headlamp mounting tab, 4 mounting bolts, a metal nut pre-mounted on the upper mounting tab and an adjustment bushing pre-mounted on the outer and the lower headlamp mounting tab respectively.

### Upper Strap, Repairing

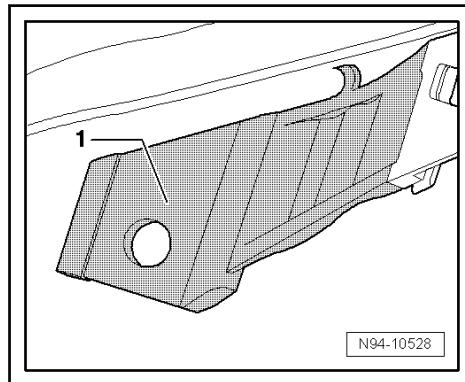


#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

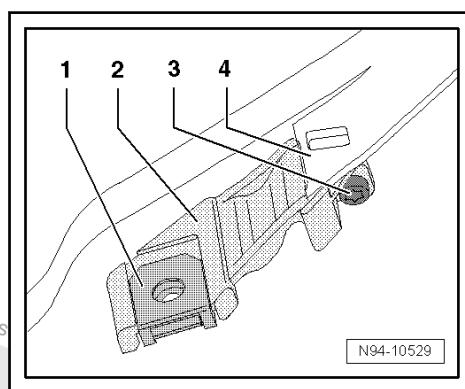
### Procedure

- Remove the headlamp. Refer to [5.1.1 , page 162](#).
- Remove the rest of the old headlamp mounting tab -1-.



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- Mount the new headlamp mounting tab -2- on the bulb socket on the headlamp -4- and tighten the screw -3- to 1.0 Nm.



N94-10529



### Note

Metal nut -1- is already pre-mounted onto the new mounting tab -2-.

- Install the headlamp. Refer to [5.1.1 , page 162](#) .
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

### Outer Strap, Repairing

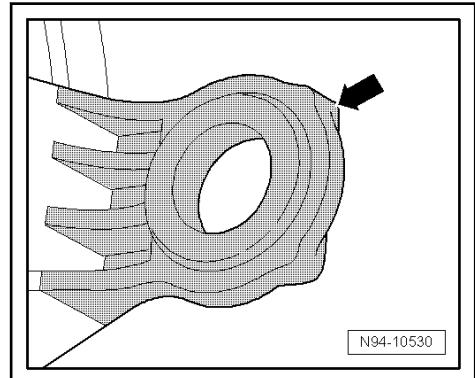


#### Caution

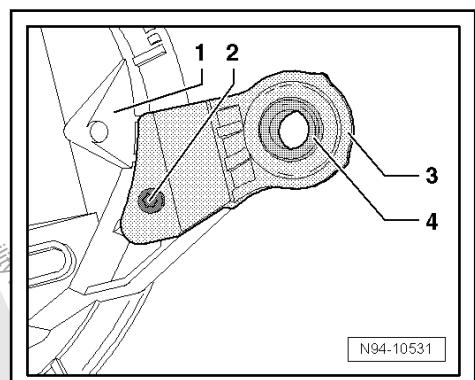
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

### Procedure

- Remove the headlamp. Refer to [5.1.1 , page 162](#) .
- Remove the rest of the old headlamp mounting tab -arrow-



- Mount the new headlamp mounting tab -3- on the bulb socket on the headlamp -1- and tighten the screw -2- to 1.0 Nm.



#### Note

*Adjustment bushing -4- is already pre-mounted onto the new mounting tab -3-.*

Install the headlamp. Refer to [⇒ 5.1.1 , page 162](#).

- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

#### Lower Strap, Repairing

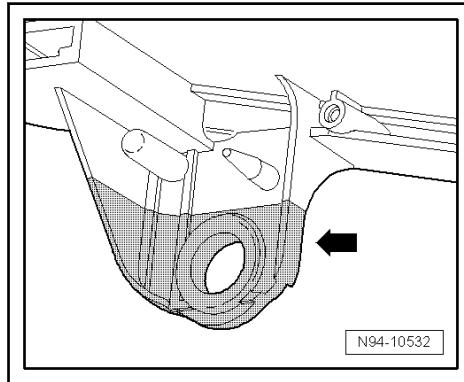


##### Caution

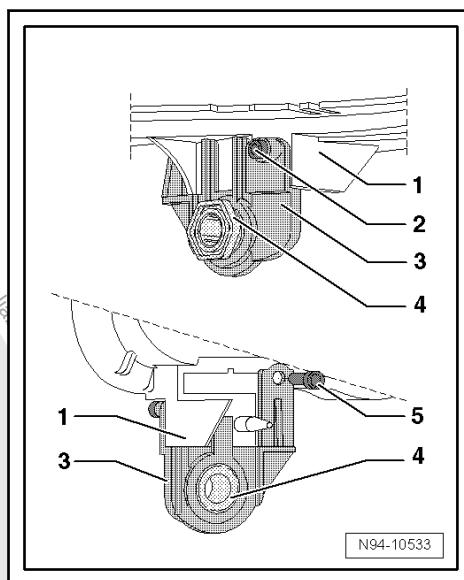
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

#### Procedure

- Remove the headlamp. Refer to [⇒ 5.1.1 , page 162](#).
- Remove the rest of the old headlamp mounting tab -arrow-.



- Mount the new headlamp mounting tab -3- on the bulb socket on the headlamp -1- and tighten the screw -2- to 1.0 Nm.



Tighten the screw -5- on the back.



**Note**

*Adjustment bushing -4- is already pre-mounted onto the new mounting tab -3-.*

- Install the headlamp. Refer to [5.1.1 , page 162](#).
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.



## 5.2 Halogen Headlamps, from MY 2010

- ⇒ [5.2.1 , page 185](#)
- ⇒ [15.2.2 Installed Position, Adjusting", page 187](#)
- ⇒ [B5.2.3 lamp Headlamp Bulb", page 189](#)
- ⇒ [B5.2.4 lamp Headlamp and Daytime Running Lamp Bulbs", page 191](#)
- ⇒ [L5.2.5 amp Bulb" page 193](#)
- ⇒ [T5.2.6 urn Signal Bulb", page 194](#)
- ⇒ [B5.2.7 lamp Adjustment Motor, Hella", page 196](#)
- ⇒ [B5.2.8 lamp Adjustment Motors, Valeo", page 198](#)
- ⇒ [M5.2.9 ounting Tabs, Servicing", page 201](#)

### 5.2.1 Headlamp

Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-



#### Note

- ◆ Headlamps from two different manufacturers are installed. Removing and installing is the identical on both headlamp versions.
- ◆ The following illustrations depict removal and installation of left headlamp. Removing and installing the right headlamp is identical.

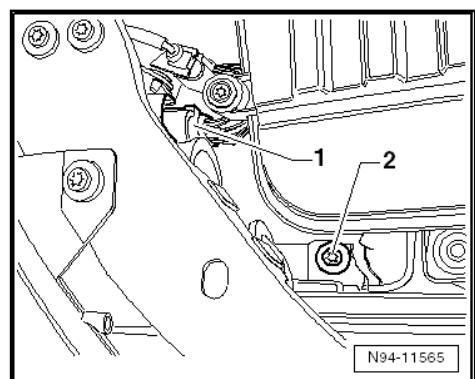


#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

#### Removing

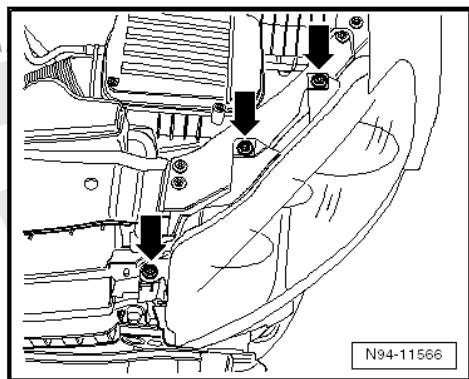
- Remove the radiator grille. Refer to ⇒ Body Exterior; Rep. Gr. 66; Description and Operation.
- Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Removal and Installation.
- Disconnect the connector -1- from the headlamp.



- Remove the rear screw -2- from the headlamp.



- Remove the bolts -arrows-.

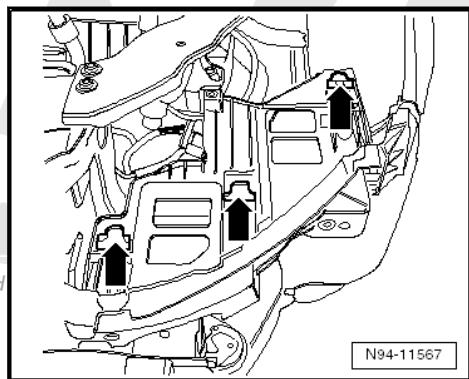


- Remove the headlamp forward from the opening in the body.

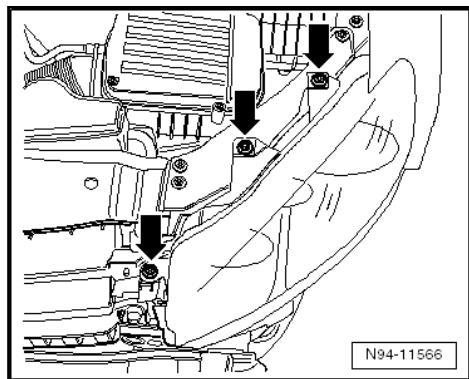
### Installing

Install in reverse order of removal. Note the following:

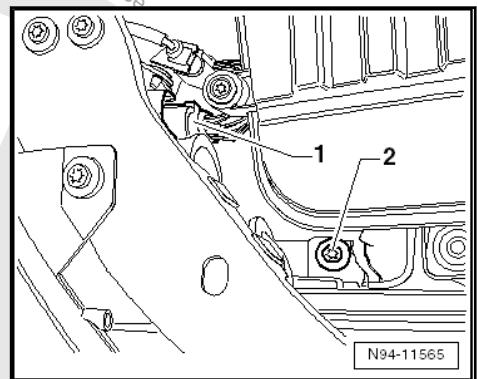
- Insert the three guides on the headlamp into the bottom -arrows- of the guide piece and slide the headlamp into the opening in the body.



- Install the three screws -arrows- first.



- Then install the screw -2- on the bottom of the headlamp.



- Tighten the threaded connections to the tightening specifications. Refer to [⇒ O2.2 overview, Halogen, from MY 2010](#), [page 125](#).
- Make sure the gap around the headlamp is even all the way around.

If the gap is uneven, then adjust the headlamp installed position. Refer to [⇒ I5.1.2 Installed Position, Adjusting](#), [page 164](#).

- Check headlamp for functions.
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

## 5.2.2 Headlamp Installed Position, Adjusting



### Note

- ◆ It is not necessary to remove the front bumper to aim the headlamps.
- ◆ Illustrations depict left headlamp.

When checking the installation position of the headlamp, if the gaps between the headlamp and body are uneven, the installation position must be corrected.

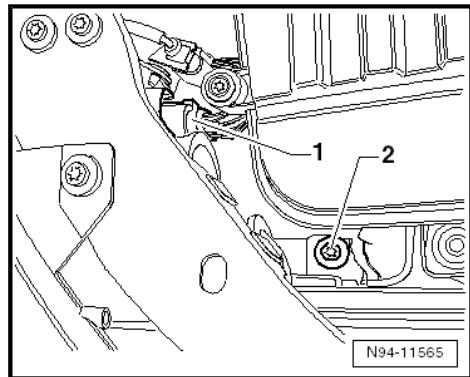


### Caution

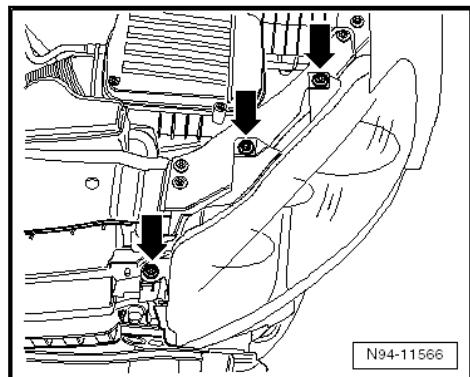
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

### Procedure

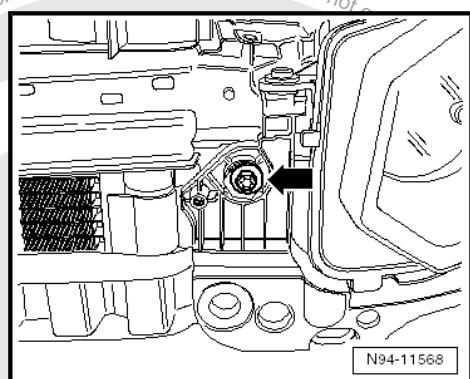
- Remove the radiator grille. Refer to ⇒ Body Exterior; Rep. Gr. 66; Description and Operation.
- Loosen the rear screw -2-.



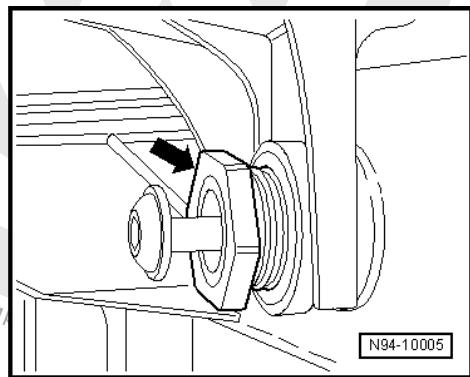
- Loosen the bolts -arrows-.



- Loosen the screw -arrow- on the bottom of the headlamp.



- Turn the adjusting bushing -arrow- on the front of the headlamp to adjust the headlamp so that it is flush with the vehicle body.





- Tighten the threaded connections to the tightening specifications. Refer to → [O2.2 overview, Halogen, from MY 2010](#), page 125 .
- Check and correct the headlamp position and make sure the gap dimensions are even.
- Install the radiator grille. Refer to → Body Exterior; Rep. Gr. 66; Description and Operation.
- Check headlamp for functions.
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

### 5.2.3 Low Beam Headlamp Bulb



#### Caution

- ◆ *Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.*
- ◆ *During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.*



#### Note

- ◆ *It is not necessary to remove the headlamp when replacing the headlamp bulb.*
- ◆ *The following illustrations show replacing a bulb in a left headlamp.*



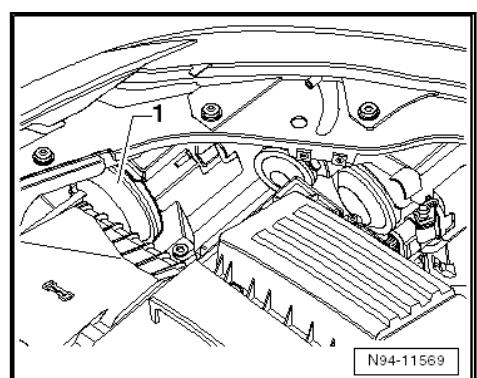
#### Caution

- ◆ *Turn off the ignition and all electrical equipment.*
- ◆ *Remove the key.*

#### Removing

only on the Hella headlamp:

- Remove the cap -1-.



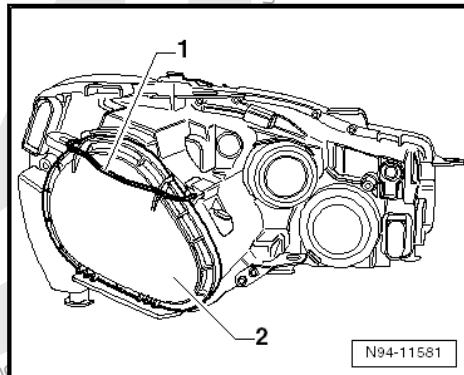
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only on the Valeo headlamp:

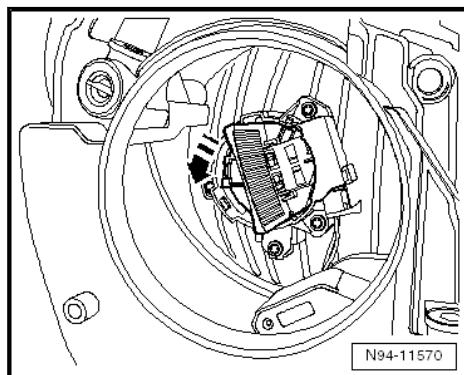
Note

- ◆ The headlamp is shown removed in the following illustration.
- ◆ It is not necessary to remove the headlamp when replacing the headlamp bulb.
- Pull the clip -1- upward and remove the cap -2-.

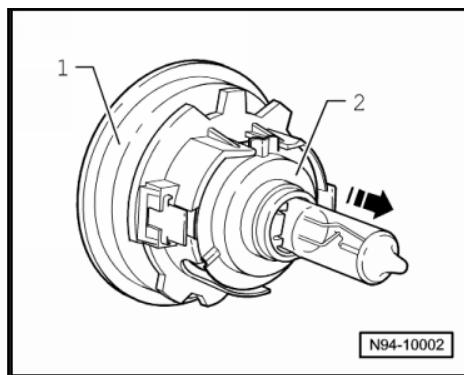


Continuation for all vehicles:

- Turn the bulb socket and Left Low Beam Headlamp Bulb -M29- in the direction of the -arrow- and remove the headlamp.



- Remove the Left Low Beam Headlamp Bulb -M29- -2- from the bulb socket -1- in the direction of the -arrow-.



Bulb: 12 V/55 W



## Installing



### Caution

- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***
- ◆ ***During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.***

- Check headlamp for functions.
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

### 5.2.4 High Beam Headlamp and Daytime Running Lamp Bulbs



### Caution

- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***
- ◆ ***During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.***

### Note

- ◆ ***The Left High Beam Headlamp Bulb -M30- and the Right High Beam Headlamp Bulb -M32- is a two-filament bulb and functions also as the Left Daytime Running Lamp -L174- and the Right Daytime Running Lamp -L175-.***
- ◆ ***It is not necessary to remove the headlamp when replacing the headlamp bulb.***
- ◆ ***The following illustrations show replacing a bulb in a left headlamp.***

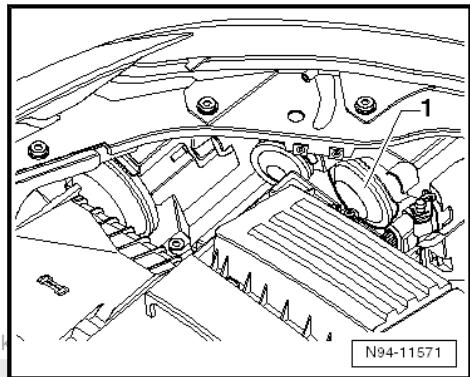


### Caution

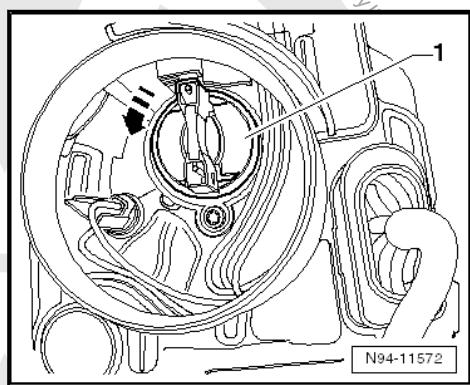
- ◆ ***Turn off the ignition and all electrical equipment.***
- ◆ ***Remove the key.***

## Removing

- Remove the cap -1-.



- Turn the bulb socket -1- in the direction of the arrow and remove it together with the Left High Beam Headlamp Bulb -M30-/Left Daytime Running Lamp bulb -L174- from the headlamp.



 Note

The Left High Beam Headlamp Bulb -M30-/Left Daytime Running Lamp bulb -L 174- is connected to the socket and cannot be disassembled.

Bulb: 12 V 15/55 W

Installing



Caution

- Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.
- During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.

Install in reverse order of removal. Note the following:

- Check headlamp for functions.
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.



## 5.2.5 Parking Lamp Bulb



### Caution

- ◆ *Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.*
- ◆ *During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.*



### Note

- ◆ *It is not necessary to remove the headlamp when replacing the headlamp bulb.*
- ◆ *The following illustrations show replacing a bulb in a left headlamp.*

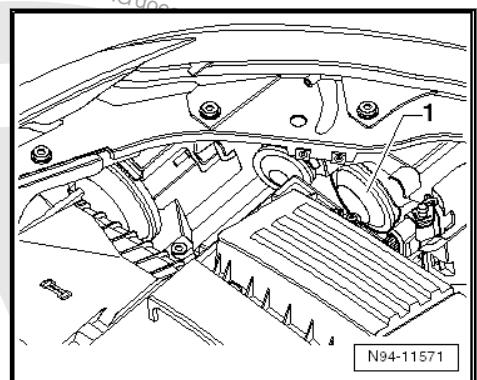


### Caution

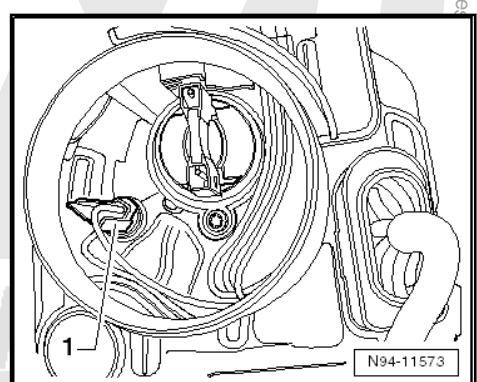
- ◆ *Turn off the ignition and all electrical equipment.*
- ◆ *Remove the key.*

### Removing

- Remove the cap -1-.

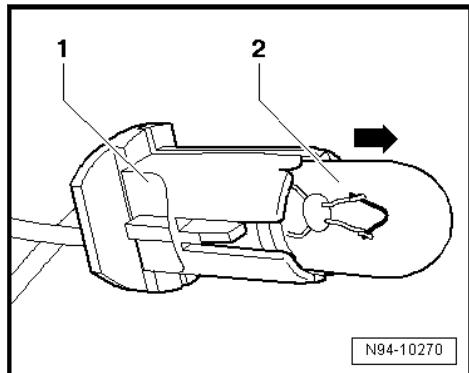


- Remove the bulb socket -1- and Left Position Lamp Bulb -M1- from the reflector to the rear.





- Pull the Left Position Lamp Bulb -M1- -2- straight out of the bulb socket -1- in the direction of the -arrow-.



Bulb: glass base bulb 12 V/5 W

#### Installing



##### Caution

- ◆ **Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.**
- ◆ **During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.**

Install in reverse order of removal. Note the following:

- Check headlamp for functions.

#### 5.2.6 Front Turn Signal Bulb



##### Caution

- ◆ **Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.**
- ◆ **During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.**



##### Note

- ◆ **It is not necessary to remove the headlamp when replacing the headlamp bulb.**
- ◆ **The following illustrations show replacing a bulb in a left headlamp.**



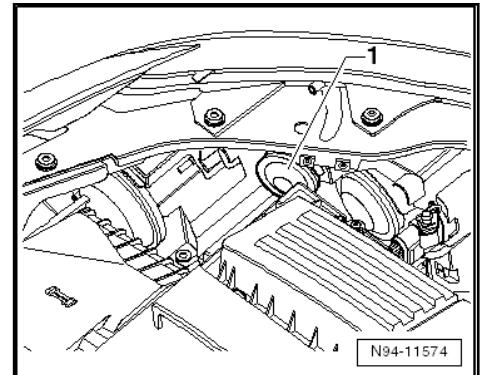
##### Caution

- ◆ **Turn off the ignition and all electrical equipment.**
- ◆ **Remove the key.**

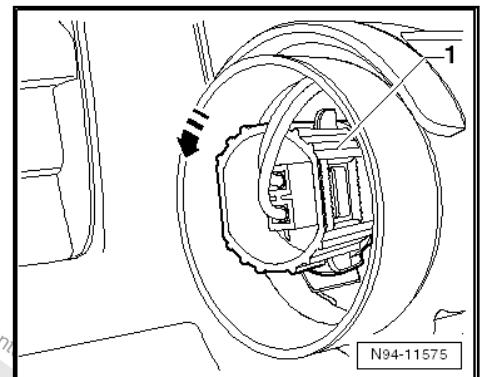


## Removing

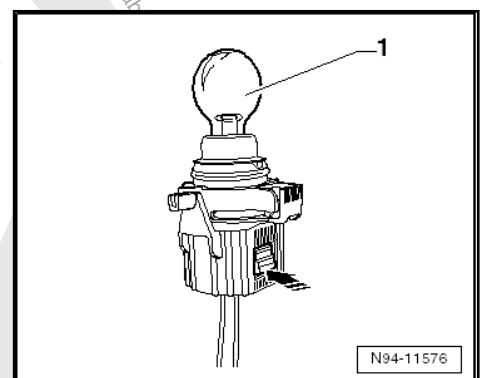
- Remove the cap -1-.



- Turn the bulb socket -1- in the direction of the -arrow- and pull the Left Front Turn Signal Bulb -M5- out of the head-lamp.



- Press the button -arrow- and pull the Left Front Turn Signal Bulb -M5- -1- upward out of the bulb socket.



The Left Front Turn Signal Bulb -M5- and the bulb socket are a single piece and cannot be disassembled.

Bulb: 12 V/24 W





## Installing



### Caution

- ◆ **Do not touch the glass of the bulb during installation.**  
Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.
- ◆ **During installation, ensure proper seating of the cap.**  
Water getting in the headlamp will cause damage.

Install in reverse order of removal. Note the following:

The bulb socket has 2 tabs-each having a different length, for locking into the reflector.

- Insert the bulb socket and the Left Front Turn Signal Bulb -M5- into the reflector so that the longer tab is at the top.
- Check headlamp for functions.

## 5.2.7 Headlamp Beam Adjustment Motor, Hella

If the motors are removed and installed, check the headlamp position and adjust it if necessary. Refer to Maintenance Manual.



### Note

The illustrations show replacing on a left headlamp.

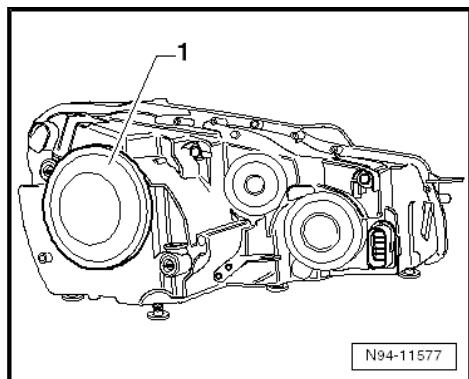


### Caution

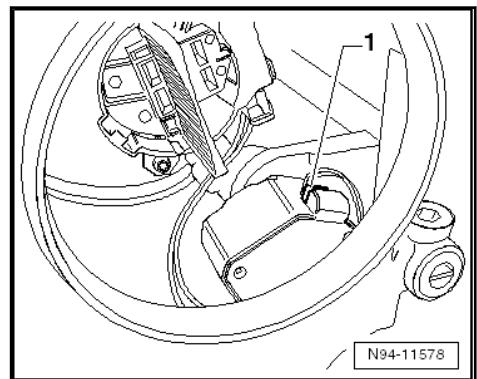
- ◆ **Turn off the ignition and all electrical equipment.**
- ◆ **Remove the key.**

## Removing

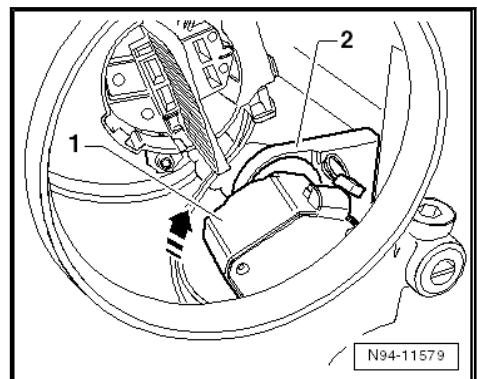
- Remove the headlamp. Refer to [5.1.1 , page 162](#).
- Remove the cap -1-.



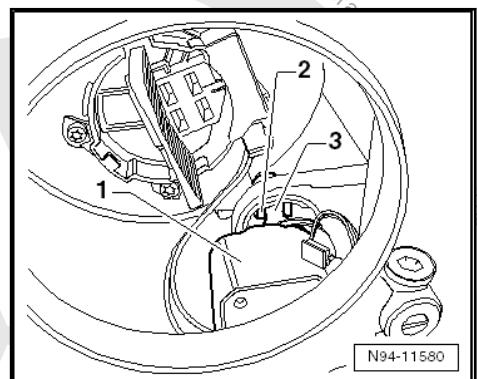
- Disconnect the connector -1- from the Left Headlamp Range Control Positioning Motor -V48-.



- Turn the Left Headlamp Beam Adjustment Motor -V48- -1- all the way in the direction of the -arrow- and pull it slightly out of the mount -2-.



- Tip the Left Headlamp Beam Adjustment Motor -V48- -1- so that the ball head -3- can be removed from under the ball head mount -2-.

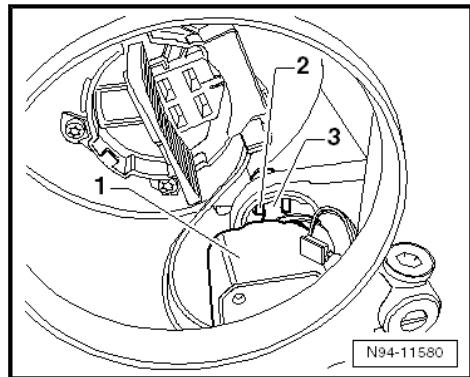


- Remove the Left Headlamp Beam Adjustment Motor -V48- from the headlamp.

### Installing

Install in reverse order of removal. Note the following:

- Insert the Left Headlamp Beam Adjustment Motor -V48- into the headlamp.
- Connect the connector.
- Install the ball head -3- carefully into the ball head mount -2- from underneath.



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- Engage the Left Headlamp Beam Adjustment Motor -V48-  
-1- by turning it all the way to the left.



#### Caution

*During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.*

- Check headlamp for functions.
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

### 5.2.8 Headlamp Beam Adjustment Motors, Valeo

If the motors are removed and installed, check the headlamp position and adjust it if necessary. Refer to Maintenance Manual.



#### Note

*The illustrations show replacing on a right headlamp.*



#### Caution

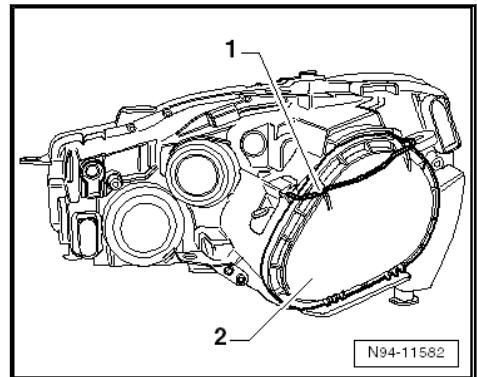
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

#### Removing

- Remove the headlamp. Refer to [5.1.1, page 162](#).
- Pull the clip -1- upward and remove the cap -2- from the headlamp.

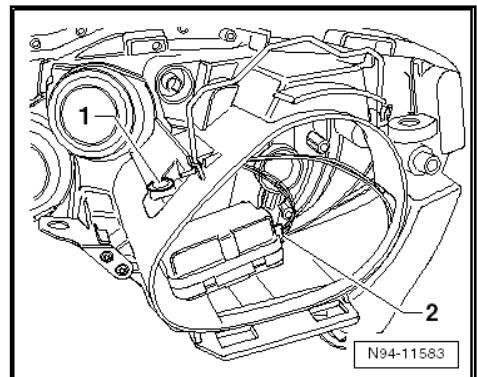


- Turn the adjusting bolt -1- for the low beam vertical adjustment completely in the following direction:



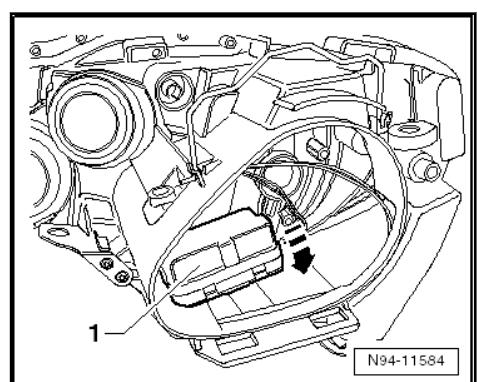
N94-11582

- ◆ Left headlamp - all around to the left
- ◆ Right headlamp - to the right
- Lift the adjusting screw -1- slightly with a screwdriver and pull it out of the headlamp housing.
- Disconnect the connector -2- from the Right Headlamp Beam Adjustment Motor -V49-.
- Move the Right Headlamp Beam Adjustment Motor -V49- -1- all the way in the direction of the -arrow- to unlock it.

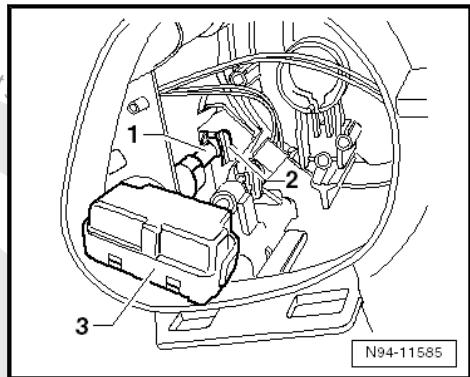


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- Tip the Right Headlamp Beam Adjustment Motor -V49- -3- so that the ball head -1- can be removed from above the ball head mount -2-.



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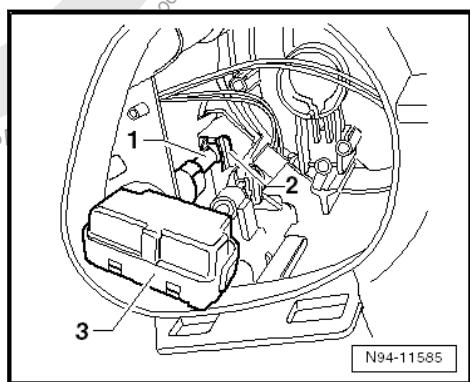


- Remove the Right Headlamp Beam Adjustment Motor -V49- from the headlamp housing.

### Installing

Install in reverse order of removal. Note the following:

- Insert the Right Headlamp Beam Adjustment Motor -V49- into the headlamp.
- Connect the connector.
- Install the ball head -1- carefully into the ball head mount -2- from the top.



- Engage the Right Headlamp Beam Adjustment Motor -V49- -3- by turning it all the way to the left.

Make sure the o-ring is installed correctly when inserting the low beam vertical adjustment bolt.

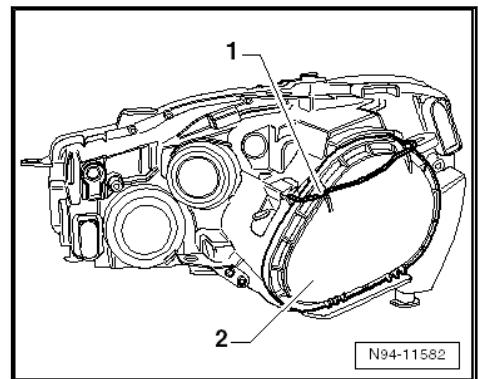
- Insert the screw for adjusting the low beam vertically into the headlamp housing.



#### Caution

*During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.*

- Install the cap -2- and secure it with the clip -1-.



- Check headlamp for functions.
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

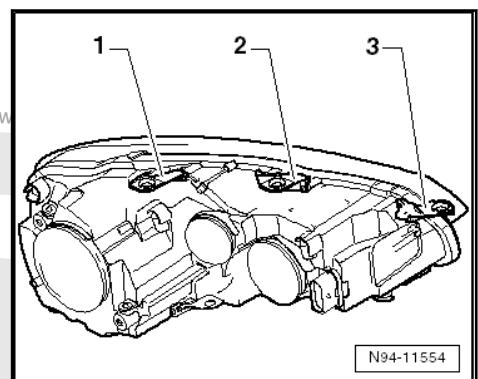
### 5.2.9 Headlamp Mounting Tabs, Servicing

#### Special tools and workshop equipment required

- ◆ Torque Screwdriver -V.A.G 1624-

If one or more headlamp mounting tabs are damaged or broken off, they can be replaced by installing the repair set. It is not necessary to replace the entire headlamp.

#### Installed location - repair tabs overview



- 1 - Outer Lug
- 2 - Center Lug
- 3 - Inner headlamp mounting tab



#### Note

- ◆ Check whether there is no further damage on the headlamp that makes installation of the repair set superfluous.
- ◆ There are two different repair kits for left and right headlamps. Refer to the Parts Catalog.
- ◆ The repair kit contains an outer, a center and an inner headlamp mounting tab and the necessary screws.
- ◆ The following illustrations show the tabs on a left headlamp. Repairing a right headlamp is identical.



## Outer Strap, Repairing

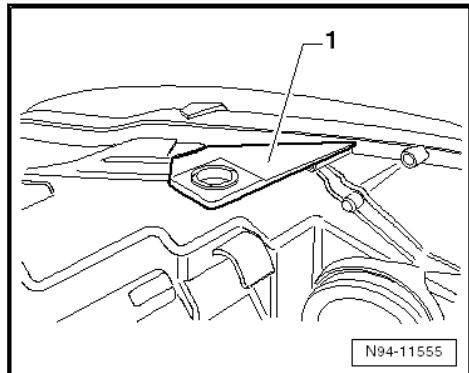


### Caution

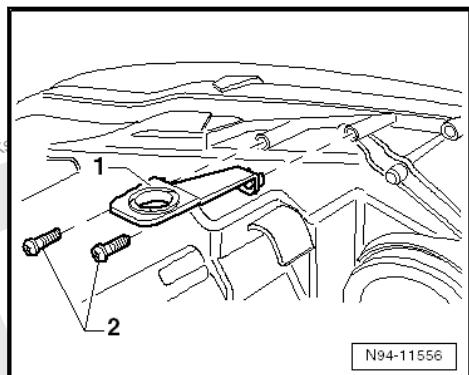
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

## Procedure

- Remove the headlamp. Refer to [⇒ 5.1.1 , page 162](#).
- Remove the rest of the old headlamp mounting tab -1-.



- Mount the new headlamp mounting tab -1- on the bulb socket on the headlamp and tighten the screws -2- to 1.0 Nm.



- Install the headlamp. Refer to [⇒ 5.1.1 , page 162](#).
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

## Center Headlamp Mounting Tab, Repairing

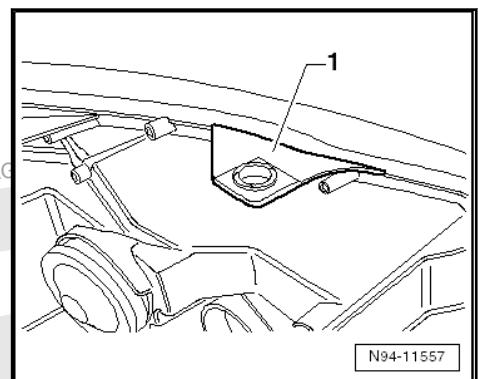


### Caution

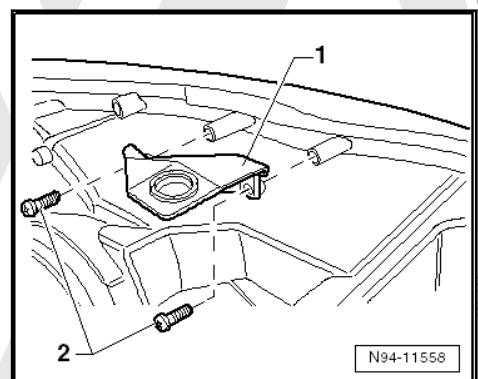
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

## Procedure

- Remove the headlamp. Refer to [⇒ 5.1.1 , page 162](#).
- Remove the rest of the old headlamp mounting tab -1-.



- Mount the new headlamp mounting tab -1- on the bulb socket on the headlamp and tighten the screws -2- to 1.0 Nm.



- Install the headlamp. Refer to [5.1.1 , page 162](#).
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

#### Inner Headlamp Mounting Tab, Repairing

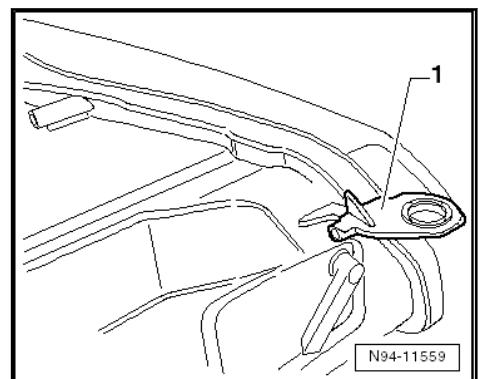


##### Caution

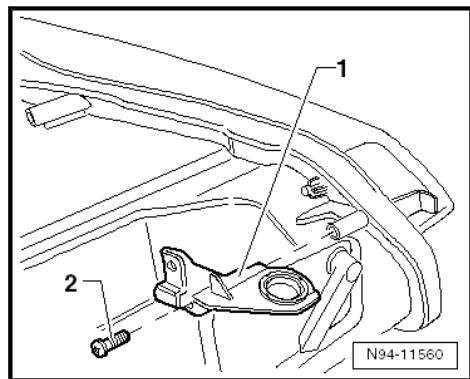
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

#### Procedure

- Remove the headlamp. Refer to [5.1.1 , page 162](#).
- Remove the rest of the old headlamp mounting tab -1-.



- Mount the new headlamp mounting tab -1- on the bulb socket on the headlamp and tighten the screw -2- to 1.0 Nm.



- Install the headlamp. Refer to [⇒ 5.1.1 , page 162](#) .
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

## 5.3 HID Headlamps, through MY 2009

[⇒ H5.3.1 eadlamp", page 204](#)

[⇒ I5.3.2 nstalled Position, Adjusting", page 204](#)

[⇒ B5.3.3 ulb", page 204](#)

[⇒ B5.3.4 eam Headlamp Bulb, Replacing", page 207](#)

[⇒ L5.3.5 amp Bulb", page 209](#)

[⇒ T5.3.6 urn Signal Bulb", page 211](#)

[⇒ R5.3.7 ange Control Positioning Motor", page 213](#)

[⇒ L5.3.8 amp Control Module", page 217](#)

[⇒ H5.3.9 eadlamp Range Control ModuleJ431 ", page 219](#)

[⇒ C5.3.10 ontrol System Sensor", page 221](#)

[⇒ M5.3.11 ounting Tabs, Servicing", page 222](#)

### 5.3.1 HID Headlamp

Headlamps, removing and installing. Refer to [⇒ 5.1.1 , page 162](#) .

Observe the safety precautions for the HID headlamp bulb, refer to [⇒ H1.2 eadlamp Safety Precautions", page 112](#) .

### 5.3.2 Headlamp Installed Position, Adjusting

For checking the headlamp aim, refer to [⇒ I5.1.2 nstalled Posi-tion, Adjusting", page 164](#) .

### 5.3.3 HID Bulb



#### Caution

- ◆ *Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.*
- ◆ *During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.*



### Note

The following figures show the replacement of the left headlamp bulb.

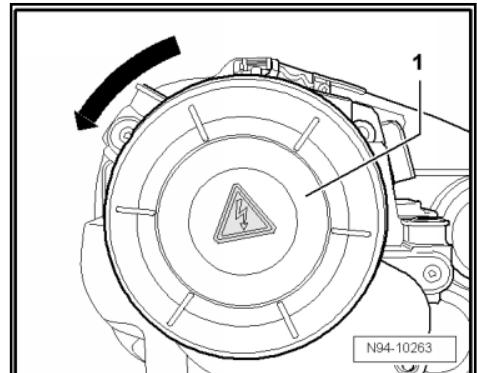


### Caution

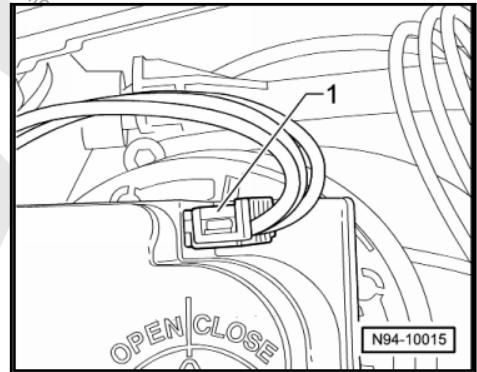
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ Observe the safety precautions for the HID headlamp bulb. Refer to [H1.2 Headlamp Safety Precautions](#), page 112.

### Removing

- Remove the headlamp. Refer to [H5.3.1 Headlamp](#), page 204.
- Remove the cap -1- in the direction of the -arrow-.



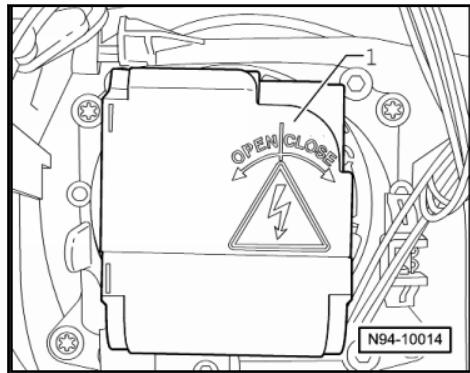
- Disengage the connector -1- and disconnect.



### Note

The connector is automatically ejected when the HID Lamp Igniter Unit -N195- is removed.

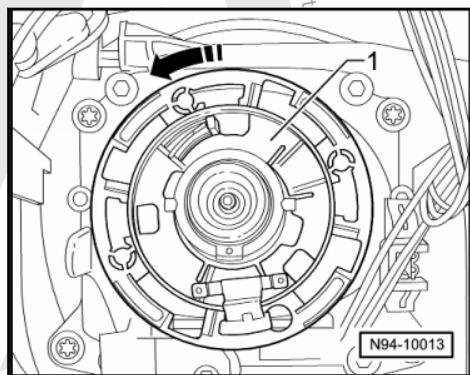
- Turn the HID Lamp Igniter Unit -N195- -1- to "OPEN" and remove it from the headlamp.



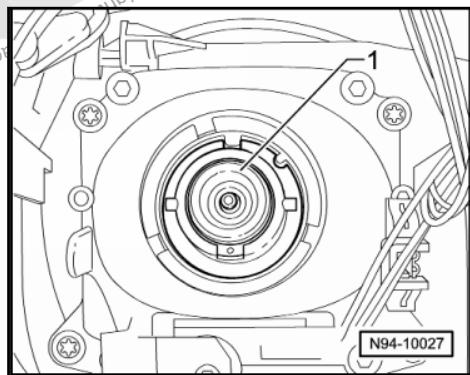
### WARNING

- ◆ There are pressures from 7 bar (101 psi) cold to 100 bar (1450 psi) hot in the glass portion of the HID bulb. Temperatures up to 700°C (1292°F) are reached on the hot glass bulb.
- ◆ The glass can explode and there is a danger of burning.
- ◆ When removing and installing HID bulbs, always wear safety glasses and gloves.

- Remove the bulb retainer -1- in the direction of the -arrow-.



- Remove the Left Hid Headlamp Bulb -L13- -1- carefully from the mount.



Bulb: D2S 35 W



## Installing



### Caution

- ◆ **Do not touch the glass of the HID lamp during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.**
- ◆ **The glass of the HID lamp must not be exposed to any mechanical strain. Glass cone is extremely sensitive and is also under high pressure.**
- ◆ **Avoid looking directly into the light beam, since the UV rays given off by the HID lamp are approximately 2.5 times stronger than those of a halogen bulb.**
- ◆ **During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.**

Install in reverse order of removal. Note the following:

- Check headlamp for functions.
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

If a headlamp with automatic vertical headlamp range control is removed, perform headlamp basic setting after installation. Refer to Maintenance Manual.

### 5.3.4 High Beam Headlamp Bulb, Replacing



### Caution

- ◆ **Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.**
- ◆ **During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.**

### Note

- ◆ *It is not necessary to remove the headlamp when replacing the headlamp bulb.*
- ◆ *The following figures show the replacement of the left headlamp bulb.*

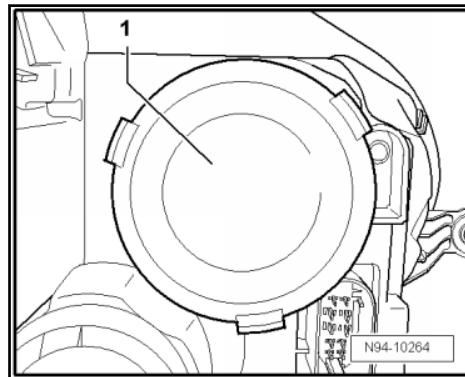


### Caution

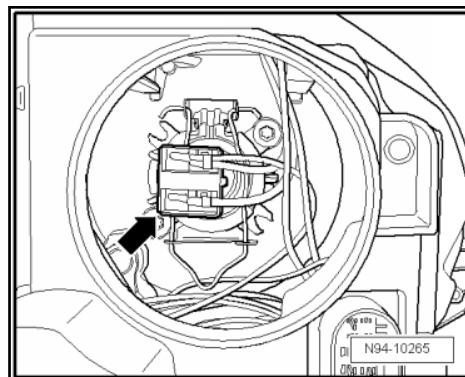
- ◆ **Turn off the ignition and all electrical equipment.**
- ◆ **Remove the key.**

## Removing

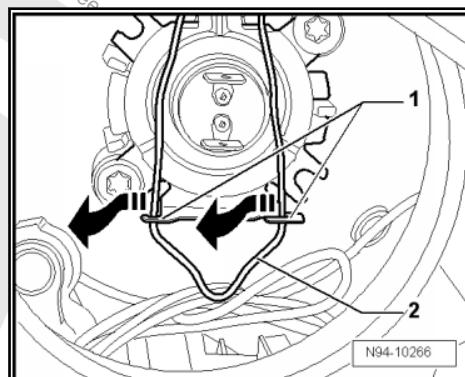
- Remove the cap -1-.



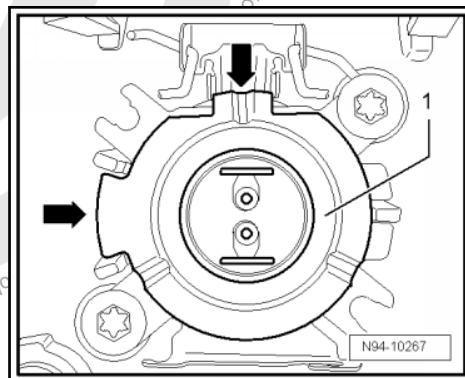
- Disconnect the connector -arrow-.



- Push the spring clip -2- in the direction of the -arrow- under the tabs -1- and open the spring clip -2-.



- Remove the Left High Beam Headlamp Bulb -M30- -1- from the headlamp.



Bulb: H7U 12V, 55 W



## Installing

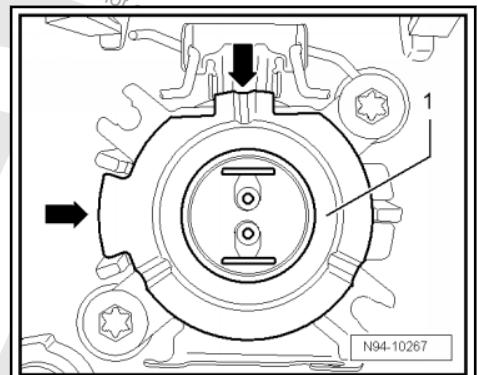


### Caution

- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***
- ◆ ***During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.***

Install in reverse order of removal. Note the following:

- Insert the Left High Beam Headlamp Bulb -M30- -1- into the headlamp -arrows-.



- Check headlamp for functions.
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

## 5.3.5 Parking Lamp Bulb



### Caution

- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***
- ◆ ***During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.***



### Note

- ◆ ***It is not necessary to remove the headlamp when replacing the headlamp bulb.***
- ◆ ***The following figures show the replacement of the left head-lamp bulb.***

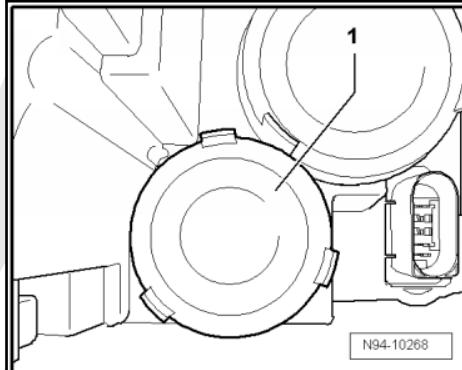


**Caution**

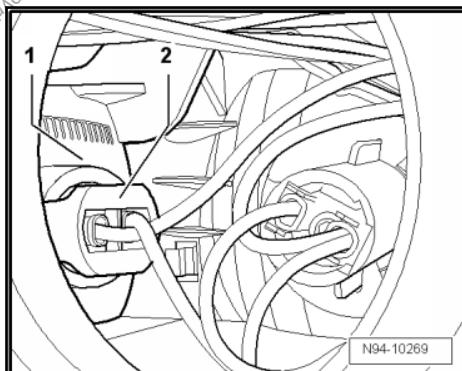
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

**Removing**

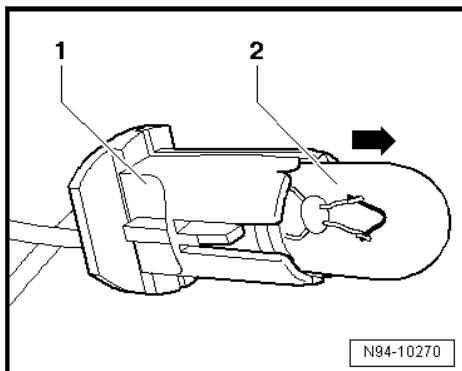
- Remove the cap -1-.



- Remove the bulb socket -2- and Left Side Marker Lamp Bulb -M1- from the reflector -1-.



- Remove the Left Parking Lamp Bulb -M1- -2- from the bulb socket -1- in the direction of the -arrow-.



Bulb: W 12 V/5 W



## Installing



### Caution

- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***
- ◆ ***During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.***

Install in reverse order of removal. Note the following:

- Check headlamp for functions.
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

## 5.3.6 Front Turn Signal Bulb



### Caution

- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***
- ◆ ***During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.***



### Note

- ◆ ***It is not necessary to remove the headlamp when replacing the headlamp bulb.***
- ◆ ***The following figures show the replacement of the left headlamp bulb.***

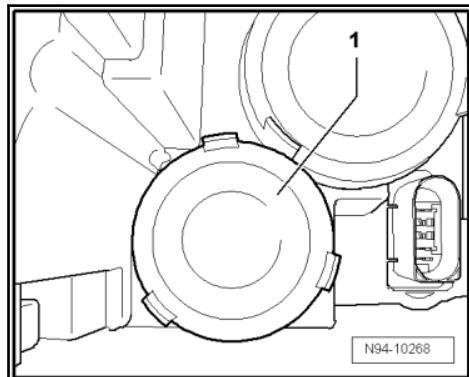


### Caution

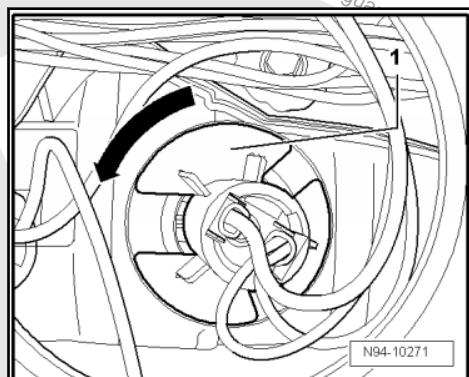
- ◆ ***Turn off the ignition and all electrical equipment.***
- ◆ ***Remove the key.***

## Removing

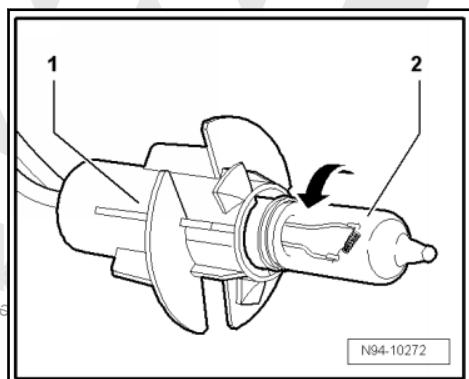
- Remove the cap -1-.



- Turn the bulb socket -1- and Left Front Turn Signal Bulb -M5- in the direction of the -arrow- and remove them from the reflector.



- Push Left Front Turn Signal Bulb -M5- -2-, into socket -1- and rotate Left Front Turn Signal Bulb -M5- -2- in the direction of the -arrow-.



- Remove the Left Front Turn Signal Bulb -M5- -2- from the socket -1-.

Bulb: H2 WLL 12 V/21 W



## Installing



### Caution

- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***
- ◆ ***During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.***

Install in reverse order of removal. Note the following:

- Check headlamp for functions.
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

### 5.3.7 Headlamp Range Control Positioning Motor

If the Left Headlamp Beam Adjustment Motor -V48-/Right Headlamp Beam Adjustment Motor -V49- are installed, removed or replaced, then the headlamp adjustment must be checked and the headlamps must be adjusted. Refer to Maintenance Manual.



### Note

The illustrations show replacing on a left headlamp.

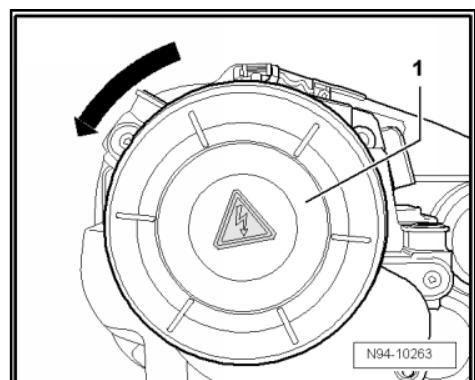


### Caution

- ◆ ***Turn off the ignition and all electrical equipment.***
- ◆ ***Remove the key.***

## Removing

- Remove the headlamp. Refer to [H5.3.1 headlamp](#), page [204](#).
- Remove the cap -1- in the direction of the -arrow-.

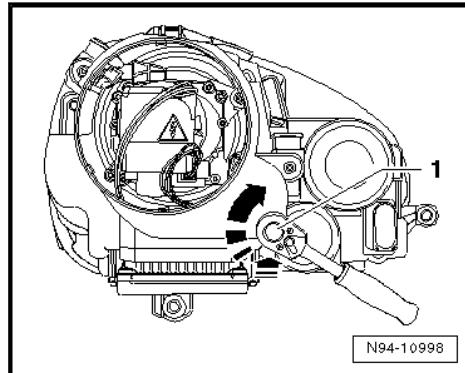


In order to reach the second bolt for the Left Headlamp Beam Adjustment Motor -V48-, create an assembly opening on the backside of the headlamp housing. This assembly opening



must be sealed off with plugs (ordered separately) after completing the work.

- Attach the socket wrench -1- to the plastic head on the back of the headlamp housing.



- Press and turn plastic hex head out of headlamp housing to break out assembly opening.

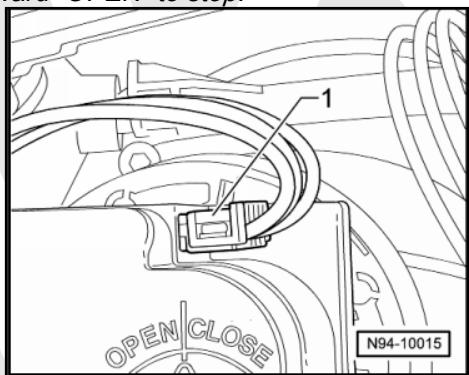
**Note**

*The locking piece broken out must not remain in headlamp. It must be removed from the headlamp housing.*

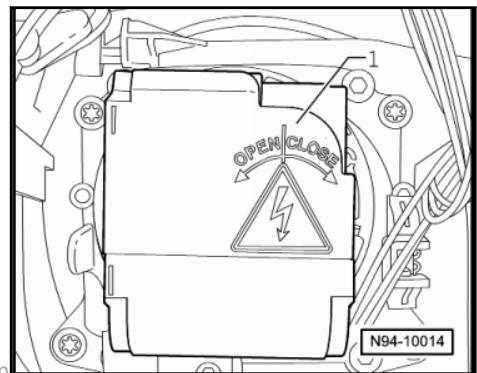
- Turn the HID Lamp Igniter Unit -N195- -1- all the way in the direction of the igniter unit marking "OPEN".

**Note**

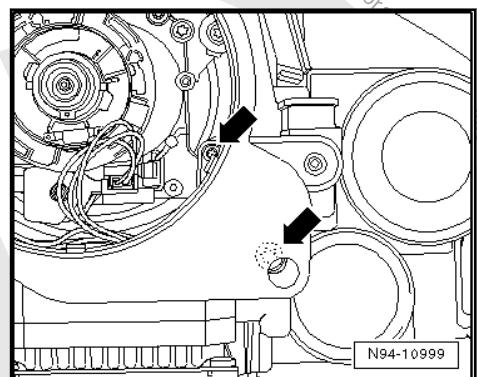
*Connector -1- is automatically released when HID Lamp Igniter Unit -N195- is turned toward "OPEN" to stop.*



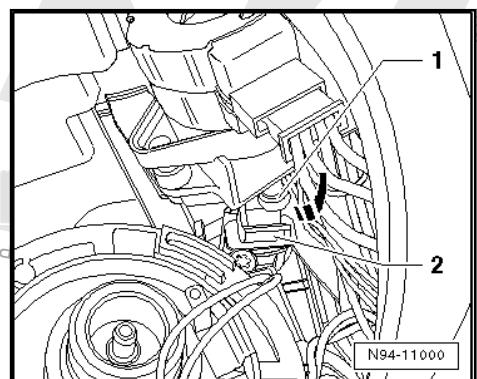
- Remove the HID Lamp Igniter Unit -N195- straight back from the headlamp.



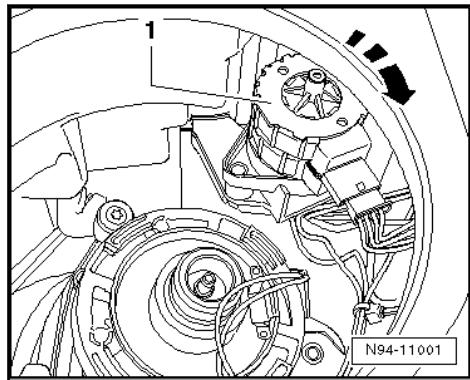
- Remove the screws -arrows- from the Left Headlamp Beam Adjustment Motor -V48-.



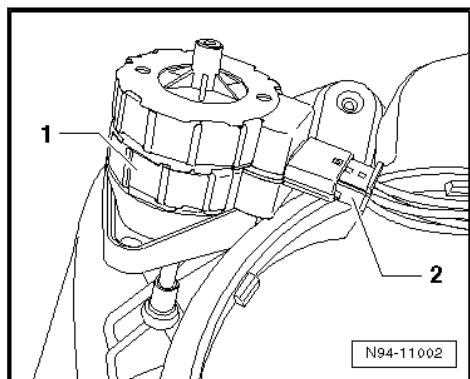
- Lift the headlamp reflector for the low beam slightly and tilt the Left Headlamp Beam Adjustment Motor -V48- so that the ball head -1- can be removed out from the ball head mount -2- in the direction of the -arrow-.



- Lower the headlamp reflector for the low beam again and slightly lift and turn the Left Headlamp Beam Adjustment Motor -V48- -1- in the direction of the -arrow-.



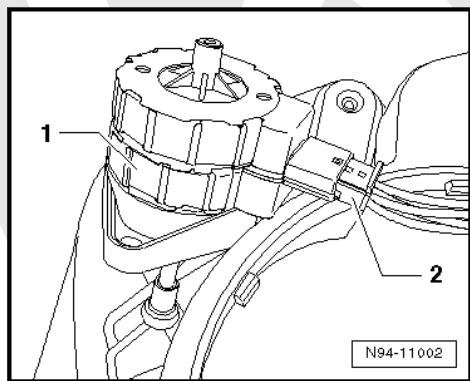
- Remove the Left Headlamp Beam Adjustment Motor -V48- out of the headlamp housing. Be careful of the connected wires.
- Disengage the connector -2- and disconnect.



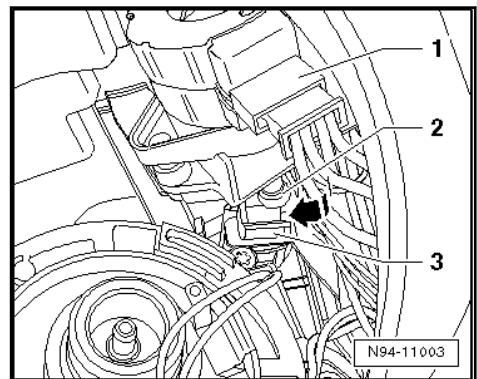
## Installing

Install in reverse order of removal. Note the following:

- Disconnect the connector -2- for the Left Headlamp Beam Adjustment Motor -V48- -1-.



- Insert the Left Headlamp Range Control Positioning Motor -V48- -1- into the headlamp in the position shown in the illustration.



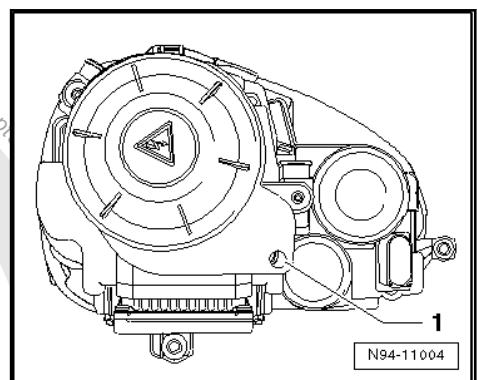
- Lift the headlamp reflector for the low beam slightly and tilt the ball head-2- for the Right Headlamp Beam Adjustment Motor -V48- so that it can be inserted in the direction of the -arrow- into the ball head mount -3-.
- Tighten the Left Headlamp Beam Adjustment Motor -V48-.



#### Caution

*During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.*

- Tighten the threaded connections to the tightening specifications. Refer to [O2.3 verview, HID Headlamp, through MY 2009](#), page 127 .
- Seal the assembly opening -1- with plugs (ordered separately). Refer to the Parts Catalog.



- Check headlamp for functions.
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

### 5.3.8 HID Lamp Control Module

The Left High-intensity Gas Discharge Lamp Control Module - J343-/Right High-intensity Gas Discharge Lamp Control Module -J344- is not equipped with OBD.



#### Note

*The illustrations show replacing on a left headlamp.*

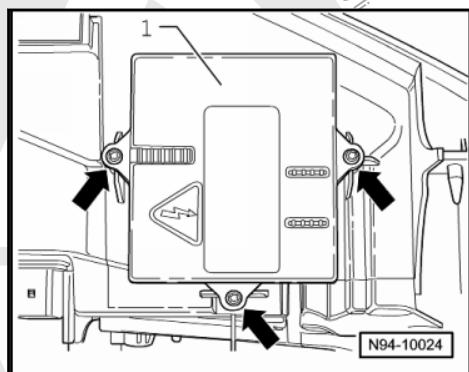


### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

### Removing

- Remove the headlamp. Refer to [H5.3.1 eadlamp](#), page [204](#).
- Remove the screws -arrows- from the Left HID Headlamp Control Module -J343- -1-.



### Note

*Do not disconnect any connectors when removing the Left High-intensity Gas Discharge Lamp Control Module -J343-. The connector is installed permanently on the headlamp and is automatically disconnected when removing the Left HID Headlamp Control Module -J343-.*

- Remove the Left HID Headlamp Control Module -J343- from the headlamp.

### Installing



### Caution

*Make sure the seal fits correctly when installing the Left HID Headlamp Control Module -J343-. Water getting in the headlamp will cause damage.*

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specifications. Refer to [O2.3 verview, HID Headlamp, through MY 2009](#), page [127](#).
- Check headlamp for functions.
- Perform basic setting of headlamps. Refer to Maintenance Manual.



### 5.3.9 Headlamp Range Control Module - J431-

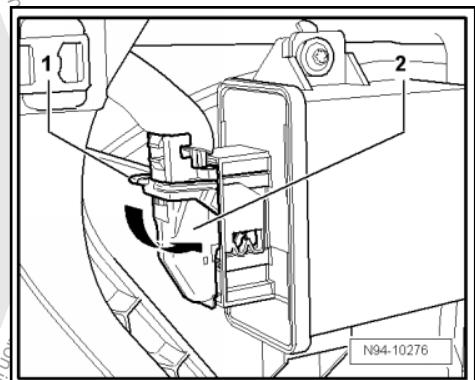


#### Caution

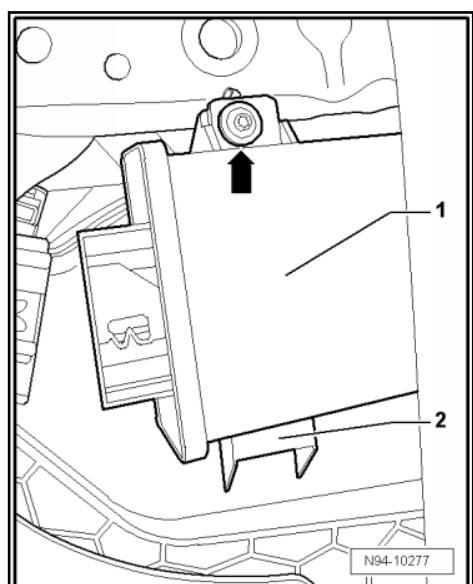
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

#### Removing

- Remove the instrument panel cover on the right side. Refer to → Body Interior; Rep. Gr. 68; Removal and Installation.
- Release the securing bracket -1- in the direction of the arrow- and disconnect the connector -2- for the headlamp range control module -J431-.



- Remove the bolt -arrow- and remove the Headlamp Range Control Module -J431- -1- from the bracket -2-.

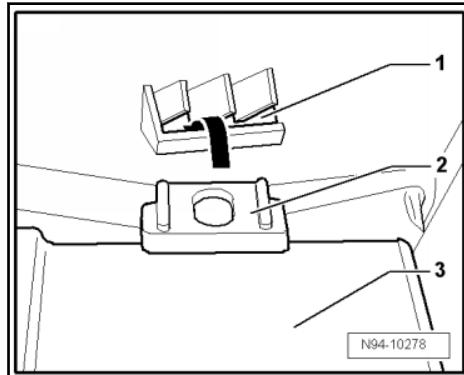


#### Installing

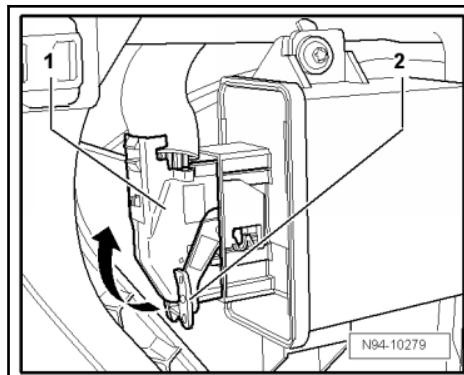
Install in reverse order of removal. Note the following:



- Insert the Headlamp Range Control Module -J431- -3- with the tab -2- into the bracket -1-.



- Press in the securing bracket -2- in the direction of the -arrow- to connect the connector -1-.



- Tighten the threaded connections to the tightening specifications. Refer to [O2.3 overview, HID Headlamp, through MY 2009](#), page 127 .

After a new headlamp range control module -J431- is installed, it must be coded [page 220](#) and a basic setting [page 221](#) must be performed.

#### Headlamp Range Control Module -J431-, Coding

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 55 - Headlamp range control
  - ◆ Headlamp range control functions
  - ◆ Control module, coding

If the Headlamp Range Control Module -J431- is coded, the basic setting must be performed on the headlamps afterward.  
Refer to [page 221](#)



## Headlamp Range Control Module -J431-, Performing a Basic Setting

The headlamp can be adjusted with the “basic setting” function.

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 55 - Headlamp range control
  - ◆ Headlamp range control functions
  - ◆ Basic setting

### 5.3.10 Level Control System Sensor

There is a Left Front Level Control System Sensor -G78- on the front axle and a Left Rear Level Control System Sensor -G76- on the rear axle.

If the Left Front Level Control System Sensor -G78-/Left Rear Level Control System Sensor -G76- is replaced, check the values ⇒ [page 221](#) and perform a basic setting on the headlamps. Refer to ⇒ Maintenance; Booklet 20.1; procedure descriptions.

Headlamp basic setting cannot be performed if the values for the Left Front Level Control System Sensor -G78-/Left Rear Level Control System Sensor -G76- are outside of the tolerance.

Remove and install the Left Front Level Control System Sensor -G78-. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40; Subframe, Stabilizer Bar, Axle Carrier; Left Front Level Control System Sensor, Removal and Installation.

Remove and install the Left Rear Level Control System Sensor -G76-. Refer to ⇒ Suspension, Wheels and Steering; Rep. Gr. 42; Assembly Overview: Subframe, Transverse Link, Tie Rod (FWD); Left Rear Level Control System Sensor, Removal and Installation.

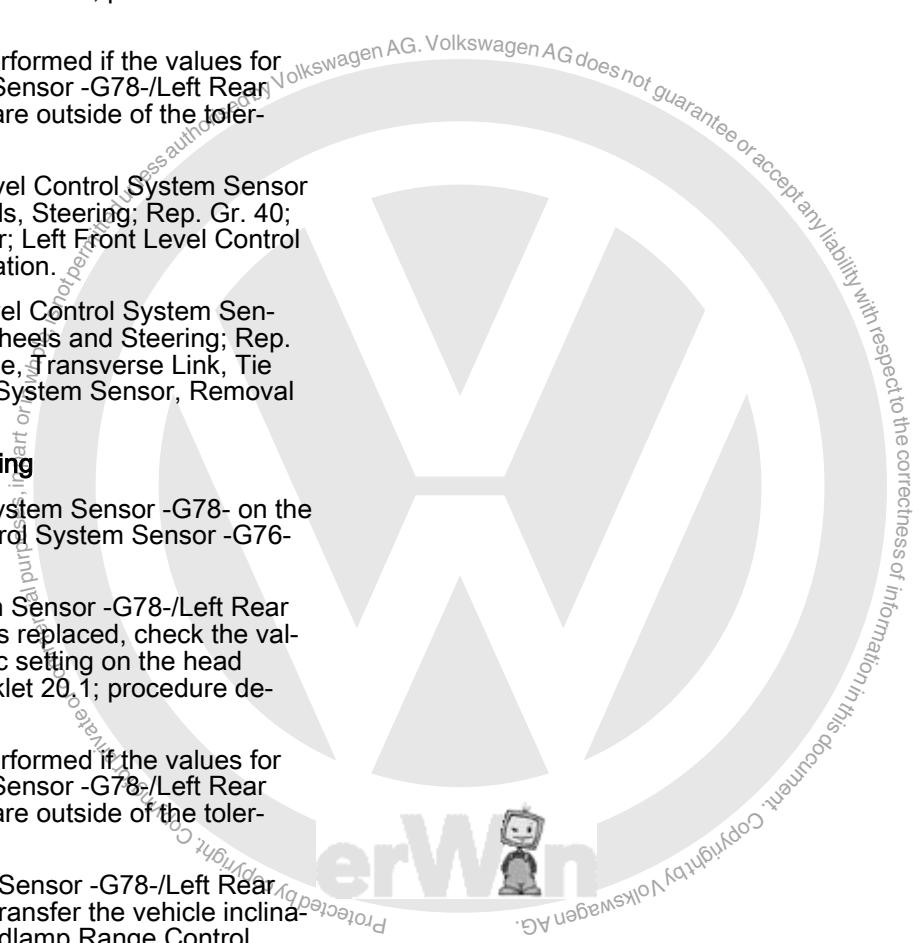
### Level Control System Sensor, Checking

There is a Left Front Level Control System Sensor -G78- on the front axle and a Left Rear Level Control System Sensor -G76- on the rear axle.

If the Left Front Level Control System Sensor -G78-/Left Rear Level Control System Sensor -G76- is replaced, check the values ⇒ [page 221](#) and perform a basic setting on the headlamps. Refer to ⇒ Maintenance; Booklet 20.1; procedure descriptions.

Headlamp basic setting cannot be performed if the values for the Left Front Level Control System Sensor -G78-/Left Rear Level Control System Sensor -G76- are outside of the tolerance.

The Left Front Level Control System Sensor -G78-/Left Rear Level Control System Sensor -G76- transfer the vehicle inclination in the form of a signal to the Headlamp Range Control Module -J431-.





There is a test to see if the Left Rear Level Control System Sensor -G76-/Left Front Level Control System Sensor -G78- deliver usable signals to the Headlamp Range Control Module -J431-.

In the following cases, no DTC entry is stored in Headlamp Range Control Module -J431-:

- ◆ If the Left Front Level Control System Sensor -G78-/Left Rear Level Control System Sensor -G76- is installed incorrectly
- ◆ if there is mechanical damage to the Left Front Level Control System Sensor -G78-/Left Rear Level Control System Sensor -G76-
- ◆ When vehicles have a modified axle geometry (lowered vehicle)



#### Note

*Headlamp basic setting cannot be performed if the values for the Left Front Level Control System Sensor -G78-/Left Rear Level Control System Sensor -G76- are outside of the tolerance.*

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 55 - Headlamp range control
  - ◆ Electrical Components
  - ◆ Level Control System Sensor, Checking

### 5.3.11 Headlamp Mounting Tabs, Servicing

Headlamp Mounting Tabs, Servicing, refer to [M5.1.10ounting Tabs, Servicing](#), page 181 .



## 5.4 HID Headlamps and Cornering Lamp, from MY 2010

- ⇒ [H5.4.1 eadlamp", page 223](#)
- ⇒ [I5.4.2 nstalled Position, Adjusting, from MY 2010", page 225](#)
- ⇒ [B5.4.3 ulb", page 226](#)
- ⇒ [S5.4.4 ignal Bulb", page 228](#)
- ⇒ [L5.4.5 amp Bulb", page 229](#)
- ⇒ [H5.4.6 eadlamp Ballast", page 231](#)
- ⇒ [P5.4.7 over Output Stage", page 232](#)
- ⇒ [H5.4.8 eadlamp Range Control ModuleJ431 ", page 233](#)
- ⇒ [B5.4.9 eam Adjustment Motor", page 235](#)
- ⇒ [R5.4.10 effector Adjustment Solenoid", page 235](#)
- ⇒ [L5.4.11 evel Sensor", page 236](#)
- ⇒ [R5.4.12 unning Lamp Module LED and Parking Lamp", page 236](#)
- ⇒ [M5.4.13 ounting Tabs, Servicing", page 236](#)

### 5.4.1 HID Headlamp



#### Note

The following illustrations depict removal and installation of left headlamp. Removing and installing the right headlamp is identical.

#### Special tools and workshop equipment required

- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-

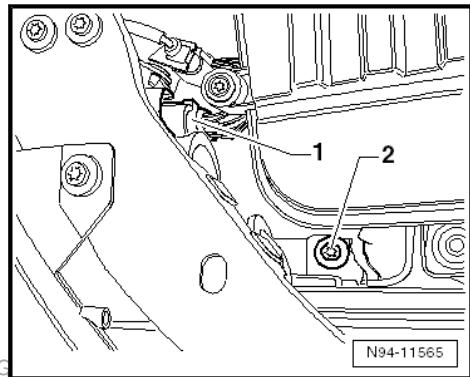


#### Caution

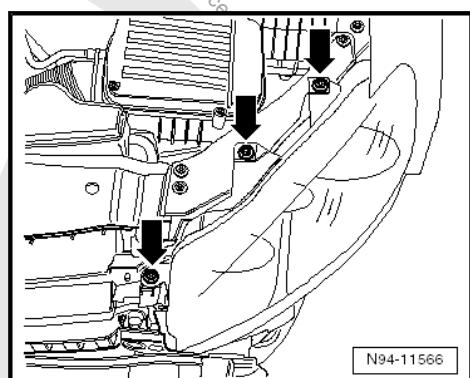
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

#### Removing

- Remove the radiator grille. Refer to ⇒ Body Exterior; Rep. Gr. 66; Description and Operation.
- Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Removal and Installation.
- Disconnect the connector -1- from the headlamp.



- Remove the rear screw -2- from the headlamp.
- Remove the bolts -arrows-.

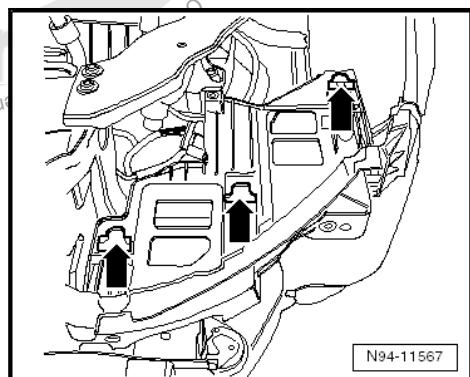


- Remove the headlamp forward from the opening in the body.

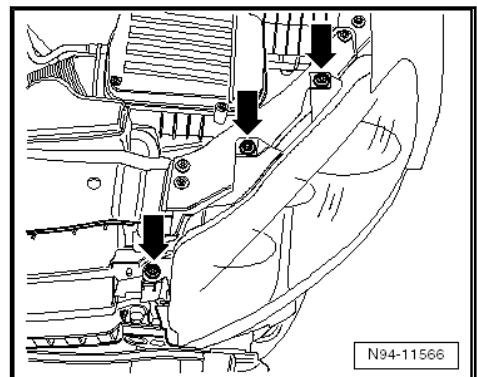
### Installing

Install in reverse order of removal. Note the following:

- Insert the three guides on the headlamp into the bottom -arrows- of the guide piece and slide the headlamp into the opening in the body.

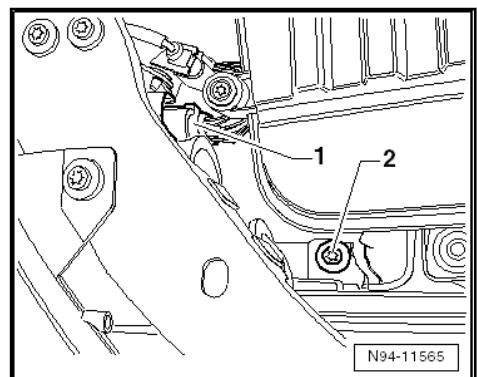


- First install the upper screw -arrows-.



N94-11566

- Then install the screw -2- on the bottom of the headlamp.



N94-11565

- Tighten the threaded connections to the tightening specifications. Refer to [⇒ O2.4 overview, HID Headlamps and Cornering Lamp, from MY 2010](#), page 129 .
- Check headlamp for functions.
- Make sure the gap around the headlamp is even all the way around.

If the gap is uneven, then adjust the headlamp installed position. Refer to [⇒ I5.1.2 Installed Position, Adjusting](#), page 164 .

Always perform a basic setting on the headlamp, whenever an HID headlamp is removed or adapted to the body. Adjust the headlamp if necessary.

Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

#### 5.4.2 Headlamp Installed Position, Adjusting, from MY 2010

Correcting the installed position of an HID headlamp and cornering lamp is identical to correcting a Halogen headlamp. Correcting installation position of headlamp. Refer to [⇒ I5.1.2 Installed Position, Adjusting](#), page 164 .



### 5.4.3 HID Bulb



#### Caution

- ◆ **Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.**
- ◆ **During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.**



#### Note

The illustrations show replacing inside a left headlamp.



#### WARNING

- ◆ **There are pressures from 7 bar (101 psi) cold to 100 bar (1450 psi) hot in the glass portion of the HID bulb. Temperatures up to 700°C (1292°F) are reached on the hot glass bulb.**
- ◆ **The glass can explode and there is a danger of burning.**
- ◆ **When removing and installing HID bulbs, always wear safety glasses and gloves.**
- ◆ **Observe the safety precautions for the HID headlamp bulb, refer to → H1.2 Headlamp Safety Precautions, page 112.**

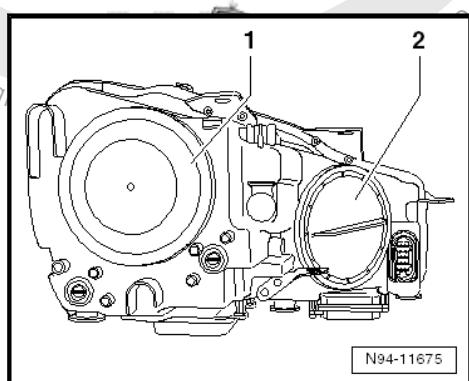


#### Caution

- ◆ **Turn off the ignition and all electrical equipment.**
- ◆ **Remove the key.**

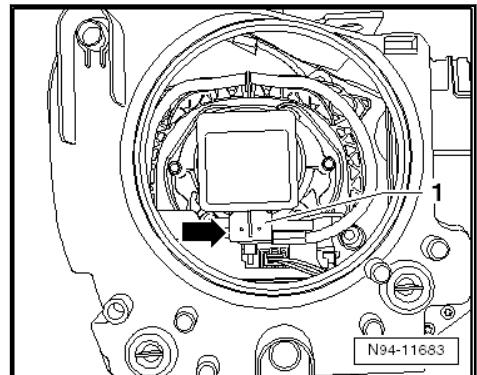
#### Removing

- Remove the headlamp. Refer to → H5.4.1 Headlamp, page 223 .
- Remove the cap -1- from the back of the headlamp.

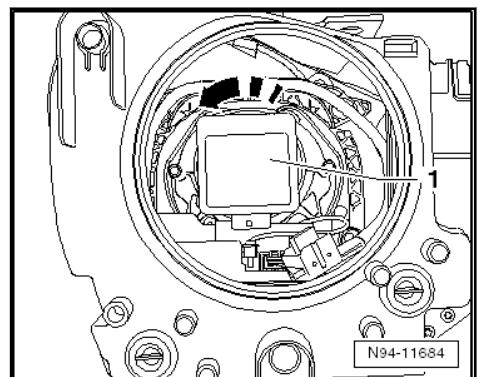




- Press the button -arrow- on the side, disconnect the connector -1- and then remove it downward.



- Turn the Left HID Headlamp Bulb -L13- -1- in the direction of the -arrow- and carefully remove it from the reflector.



Bulb: D1S 12 V/35 W

### Installing



#### Caution

- ◆ ***Do not touch the glass of the HID lamp during installation. Fingers leave traces of grease on the glass cone which can evaporate when the HID lamp is switched on causing the glass cone to cloud.***
- ◆ ***The glass of the HID lamp must not be exposed to any mechanical strain. Glass cone is extremely sensitive and is also under high pressure.***
- ◆ ***Avoid looking directly into the light beam, since the UV rays given off by the HID lamp are approximately 2.5 times stronger than those of a halogen bulb.***
- ◆ ***During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.***

Install in reverse order of removal. Note the following:

- Check headlamp for functions.
- Check headlamp adjustment and adjust the headlamps. Refer to Maintenance Manual.

If a headlamp with automatic vertical headlamp range control is removed, perform headlamp basic setting after installation. Refer to Maintenance Manual.



## 5.4.4 Turn Signal Bulb



### Caution

- ◆ **Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.**
- ◆ **During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.**



### Note

- ◆ **It is not necessary to remove the headlamp when replacing the headlamp bulb.**
- ◆ **The following illustrations show replacing a bulb in the right headlamp.**

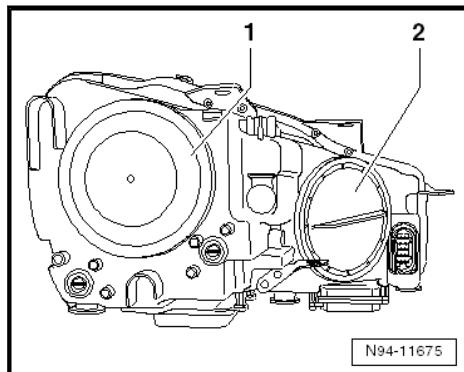


### Caution

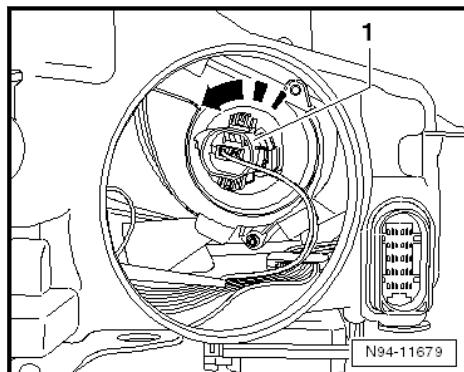
- ◆ **Turn off the ignition and all electrical equipment.**
- ◆ **Remove the key.**

### Removing

- Turn the cap -2- counter-clockwise and remove it.

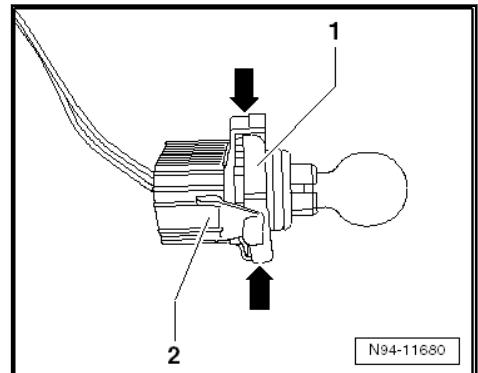


- Turn the bulb socket -1- in the direction of the -arrow- and remove it together with the Right Front Turn Signal Bulb -M7- from the reflector.





- Press the locking mechanism -arrows- and remove the Right Front Turn Signal Bulb -M7- -1- from the bulb socket -2-.



N94-11680

The Right Front Turn Signal Bulb -M7- and the bulb socket are a single piece and cannot be disassembled.

Bulb: PSY 12 V/24 W

#### Installing



##### Caution

- ◆ During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.
- ◆ Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.

Install in reverse order of removal. Note the following:

- Check headlamp for functions.

#### 5.4.5 Parking Lamp Bulb



##### Caution

- ◆ Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.
- ◆ During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.



##### Note

- ◆ It is not necessary to remove the headlamp when replacing the headlamp bulb.
- ◆ The following illustrations show replacing a bulb in the left headlamp.

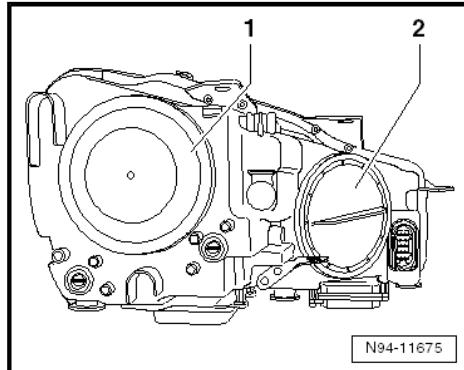


**Caution**

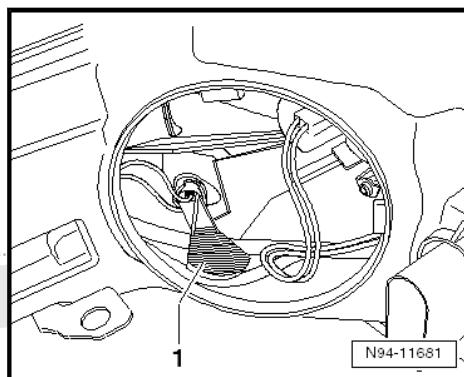
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

**Removing**

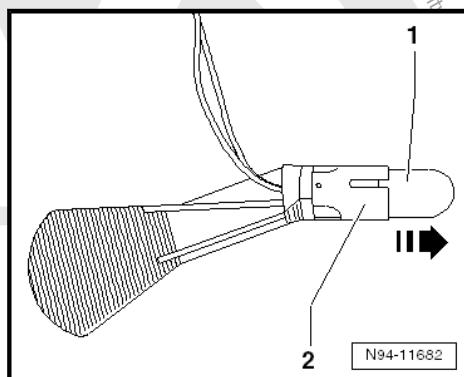
- Turn the cap -2- counter-clockwise and remove it.



- Remove the bulb socket -1- and Left Side Marker Lamp Bulb -M1- from the reflector. Be careful of the different wire lengths still connected.



- Pull the Left Position Lamp Bulb -M1- -1- straight out of the bulb socket -2- in -direction of arrow-.



Bulb: glass base bulb 12 V/5 W



## Installing



### Caution

- ◆ During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.
- ◆ Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.

Install in reverse order of removal. Note the following:

- Check headlamp for functions.

## 5.4.6 HID Headlamp Ballast

The Left HID Headlamp Ballast -J426-/Right HID Headlamp Ballast -J427- is located on the under side of the respective headlamp housing.



### Note

*The following illustrations show removing and installing a right headlamp.*

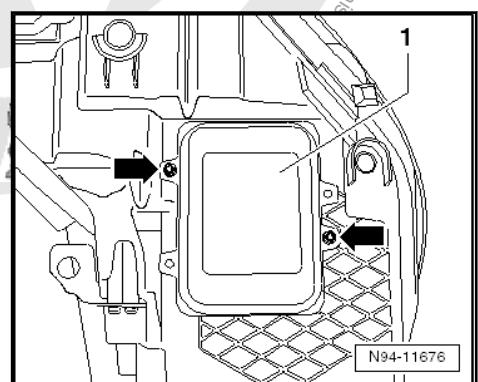


### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

## Removing

- Remove the headlamp. Refer to [H5.4.1 headlamp](#), page 223 .
- Remove the bolts -arrows-.



### Note

*When removing the Right HID Headlamp Ballast -J427- from the headlamp housing, the electrical connector is disconnected at the same time.*



- Remove the Right HID Lamp Ballast -J427- -1- straight up from the headlamp housing.

### Installing

Install in reverse order of removal. Note the following:



#### Caution

*Ensure that the Right HID Lamp Ballast -J427- is correctly positioned on the seal. Water getting in the headlamp will cause damage.*

- Tighten the threaded connections to the tightening specifications. Refer to [⇒ O2.4 verview, HID Headlamps and Cornering Lamp, from MY 2010](#), page 129 .
- Check headlamp for functions.

## 5.4.7 Headlamp Power Output Stage

The Left Headlamp Power Output Stage -J667-/Right Headlamp Power Output Stage -J668- is located at the bottom of the headlamp housing.



#### Note

*The following illustrations show removing and installing a right headlamp.*

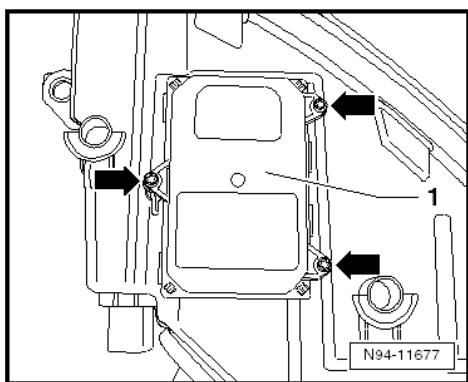


#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

### Removing

- Remove the headlamp. Refer to [⇒ H5.4.1 eadlamp](#), page 223 .
- Remove the bolts -arrows-.





### Note

The connector is disconnected at the same time when the Right Headlamp Power Output Stage -J668- is removed from the headlamp housing.

- Remove the Right Headlamp Power Output Stage -J668- -1- from the headlamp housing straight up.

### Installing

Install in reverse order of removal. Note the following:



#### Caution

*Make sure the seal fits correctly when installing the Right Headlamp Power Output Stage -J668-. Water getting in the headlamp will cause damage.*

- Tighten the threaded connections to the tightening specifications. Refer to [O2.4 overview, HID Headlamps and Cornering Lamp, from MY 2010](#), page 129 .

After installing a new Right Headlamp Power Output Stage -J668-, code the headlamp range control module -J431-. Then perform a headlamp basic setting. Refer to [, page 234](#) and Maintenance Manual.

- Check headlamp for functions.

### Headlamp Power Output Stage, Checking

The Left Headlamp Power Output Stage -J667- /Right Headlamp Power Output Stage -J668- is located at the bottom of the headlamp housing.

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 55 - Headlamp range control
  - ◆ Electrical Components
  - ◆ Headlamp Power Output Stages

### 5.4.8 Headlamp Range Control Module - J431-



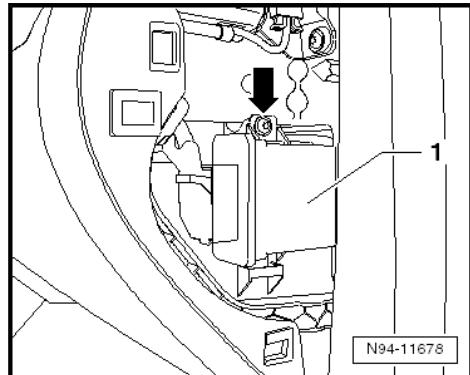
#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key

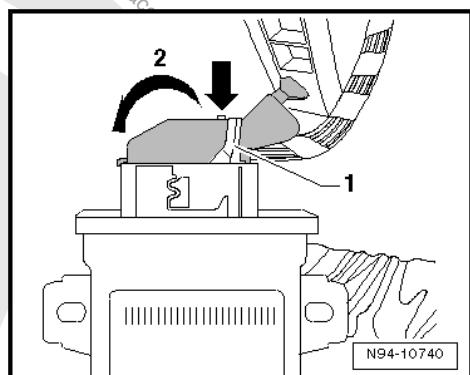


## Removing

- Remove the instrument panel cover on the right side. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Remove the bolts -arrow-.



- Remove the Headlamp Range Control Module J431-1-. Be careful of the different wire lengths still connected.
- Press the locking ring -arrow- and then tilt the bracket -1- in the direction -arrow 2- and disconnect the connector.



## Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specifications. Refer to ⇒ [O2.4 verview, HID Headlamps and Cornering Lamp, from MY 2010](#), page 129 .

It is necessary to code the Headlamp Range Control Module -J431- ⇒ , page 234 and then perform a basic setting to the headlamp after installing a new Headlamp Range Control Module -J431-. Refer to Maintenance Manual.

- Check headlamp for functions.
- Check the headlamp aim and adjust. Refer to Maintenance Manual.

## Headlamp Range Control Module -J431-, Coding

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select [Guided Fault Finding](#).
- Use the [GO TO](#) button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body



- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 55 - Headlamp range control
- ◆ Headlamp range control functions
- ◆ Control module, coding

#### 5.4.9 Headlamp Beam Adjustment Motor

The headlamp beam adjustment motor cannot be removed on HID headlamps with corning lamps.

If the headlamp beam adjustment motor is defective, the headlamp must be replaced.

##### Headlamp Beam Adjustment Motor, Checking

###### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 55 - Headlamp range control
  - ◆ Electrical Components
  - ◆ Headlamp range control positioning motor

##### Swivel Module Position Sensor, Checking

###### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 55 - Headlamp range control
  - ◆ Electrical Components
  - ◆ Swivel module position sensor

#### 5.4.10 Headlamp Reflector Adjustment Solenoid

Gas discharge lamps generate only the low beam headlamp in standard Xenon headlamps. “Bi-Xenon” allows “one” gas-discharge lamp to generate low beam and high beam headlamp. For this purpose, an electro-mechanical adjuster for the Left headlamp Reflector Adjustment Solenoid -N395-/Right head-lamp Reflector Adjustment Solenoid -N396- opens the dimmed region of low beam headlamp when high beam function is operated and a high beam light emission results.



The Left headlamp Reflector Adjustment Solenoid -N395-/Right headlamp Reflector Adjustment Solenoid -N396- is located inside the headlamp and cannot be replaced separately.

If a failure occurs, the entire headlamp must be replaced. Refer to [⇒ H5.4.1 eadlamp](#), page 223 .

#### Headlamp Reflector Adjustment Solenoid, Checking

Gas discharge lamps generate only the low beam headlamp in standard Xenon headlamps. "Bi-Xenon" allows "one" gas-discharge lamp to generate low beam and high beam headlamp. For this purpose, an electro-mechanical adjuster for the Left headlamp Reflector Adjustment Solenoid -N395-/Right headlamp Reflector Adjustment Solenoid -N396- opens the dimmed region of low beam headlamp when high beam function is operated and a high beam light emission results.

Check the Left headlamp Reflector Adjustment Solenoid -N395- and Right headlamp Reflector Adjustment Solenoid -N395- can using the Vehicle Electrical System Control Module -J519- output diagnostic test, refer to [⇒ page 441](#) .

#### 5.4.11 Vehicle Level Sensor

Remove and install the Left Front Level Control System Sensor -G78-. Refer to [⇒ Suspension, Wheels, Steering; Rep. Gr. 40; Removal and Installation](#).

Remove and install the Left Rear Level Control System Sensor -G76-. Refer to [⇒ Suspension, Wheels and Steering; Rep. Gr. 42; Removal and Installation](#).

#### 5.4.12 Daytime Running Lamp Module LED and Parking Lamp

The left LED parking lamp/DRL module -L176- and the right LED parking lamp/DRL module -L177- are located inside the headlamp and cannot be replaced individually.

If a failure occurs, the entire headlamp must be replaced. Refer to [⇒ H5.4.1 eadlamp](#), page 223 .

#### 5.4.13 Headlamp Mounting Tabs, Servicing

If one or more headlamp mounting tabs are damaged or broken off, they can be replaced by installing the repair set. It is not necessary to replace the entire headlamp.

##### Note

- ◆ Check whether there is no further damage on the headlamp that makes installation of the repair set superfluous.
- ◆ There are 2 different repair kits, one for left headlamp and one for the right headlamp. Refer to the Parts Catalog.
- ◆ The repair kit contains an outer, a center and an inner headlamp mounting tab and the necessary screws.

Servicing an HID headlamp and cornering lamp is identical to servicing a Halogen headlamp. Servicing headlamp securing straps [⇒ M5.1.10 ounting Tabs, Servicing](#), page 181 .



## 5.5 Fog Lamp

- ⇒ [L5.5.1 amps, through MY 2009", page 237](#)
- ⇒ [L5.5.2 amps, from MY 2010", page 238](#)
- ⇒ [L5.5.3 amp Bulb/Cornering Lamp", page 239](#)
- ⇒ [L5.5.4 amp, Adjusting", page 240](#)

### 5.5.1 Fog Lamps, through MY 2009



#### Note

The following illustrations depict removal and installation of left fog lamp.

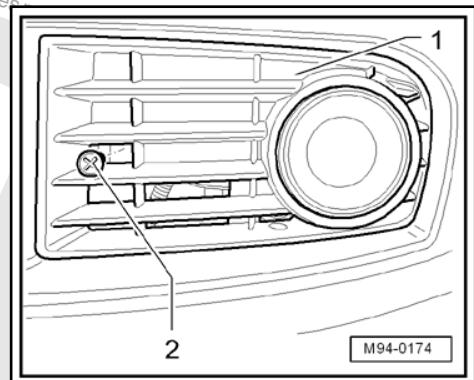


#### Caution

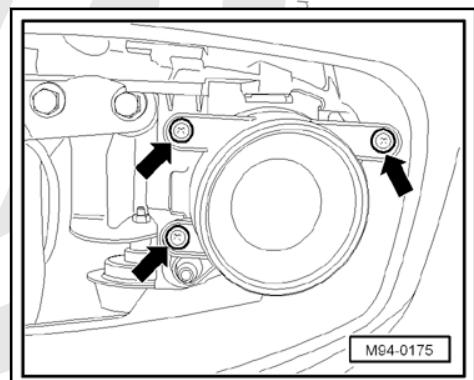
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

#### Removing

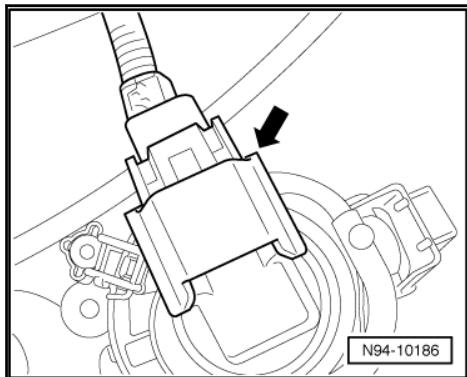
- Remove the bolt -2-.
- Remove the cap -2-.



- Remove the bolts -arrows-.



- Remove the fog lamp housing from the bumper and disconnect the connector -arrow-.



### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specifications. Refer to [⇒ L2.5 amp Overview, through MY 2009](#), [page 131](#).
- Check headlamp for functions.
- Check and adjust the fog lamps. Refer to Maintenance Manual.

## 5.5.2 Fog Lamps, from MY 2010



### Note

The following illustrations depict removal and installation of left fog lamp.

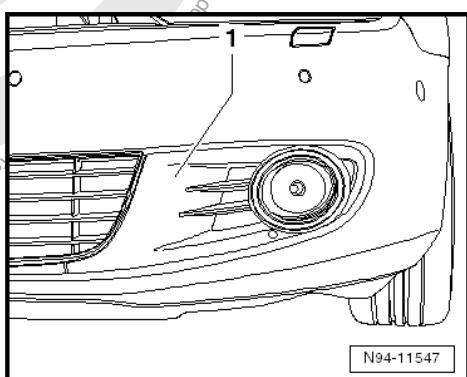


### Caution

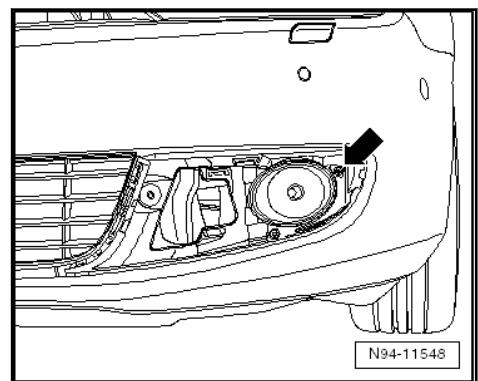
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

### Removing

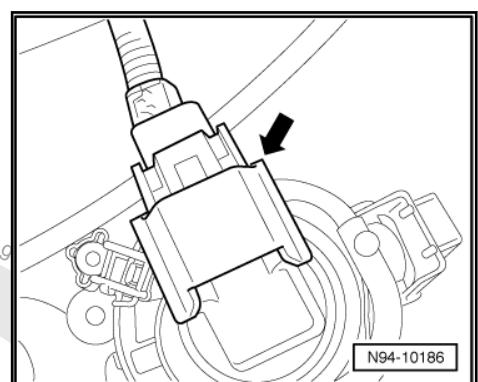
- Remove the cap -1-



- Remove the bolts -arrow-.



- Remove the fog lamp housing from the bumper cover.
- Disconnect the connector -arrow-.



- Remove the fog lamp housing.

#### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specifications. Refer to [⇒ L2.6 amp Overview, from MY 2010”, page 131](#).
- Check headlamp for functions.
- Check and adjust the fog lamps. Refer to Maintenance Manual.

### 5.5.3 Fog Lamp Bulb/Cornering Lamp

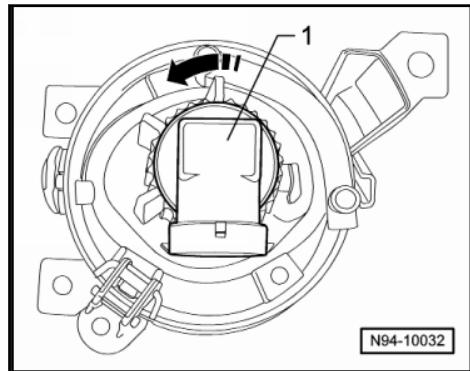


#### Note

The following illustrations depict removal and installation at left fog lamp.

#### Removing

- Remove the fog lamp. Refer to [⇒ L5.5.1amps, through MY 2009”, page 237](#).
- Turn the bulb socket and bulb -1- in the direction of the -arrow- and remove from the fog lamp.



The bulb is permanently attached to the bulb socket and cannot be replaced separately.

Bulb: HB4 12 V/51 W

#### Installing



##### Caution

- ◆ *Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.*

Install in reverse order of removal. Note the following:

- Check headlamp for functions.
- Check and adjust the fog lamps. Refer to Maintenance Manual.

#### 5.5.4 Fog Lamp, Adjusting

Adjust the fog lamps. Refer to Maintenance Manual.

#### 5.6 Exterior Rearview Mirror Lamps

⇒ [R5.6.1 rearview Mirror Turn Signal Bulbs L131/L132 ", page 240](#)

⇒ [R5.6.2 rearview Mirror Entry Lamp", page 241](#)

#### 5.6.1 Exterior Rearview Mirror Turn Signal Bulbs -L131/-L132-

The Driver Exterior Mirror Turn Signal Lamp Bulb -L131-/front passenger exterior mirror turn signal lamp bulb -L132- are inside the left and right exterior mirror housings.



##### Caution

- ◆ *Turn off the ignition and all electrical equipment.*
- ◆ *Remove the key.*

#### Removing

- Remove the Driver Exterior Rearview Mirror Turn Signal Bulb -L131-/Front Passenger Exterior Rearview Mirror Turn Signal Bulb -L132-. Refer to ⇒ Body Exterior; Rep. Gr. 66; Removal and Installation.



## Installing

- Install the Driver Exterior Rearview Mirror Turn Signal Bulb - L131-/Front Passenger Exterior Rearview Mirror Turn Signal Bulb -L132-. Refer to ⇒ Body Exterior; Rep. Gr. 66; Removal and Installation.

### 5.6.2 Exterior Rearview Mirror Entry Lamp

Driver Entry Lamp (in Outside Mirror) -W52-/Front Passenger Entry Lamp (in Outside Mirror) -W53- are integrated in the mirror housing.

It is not necessary to remove the exterior mirror in order to remove and install the Driver Entry Lamp In Exterior Mirror -W52-/Front Passenger Entry Lamp in Exterior Rearview Mirror -W53-.

The Driver Entry Lamp (in Outside Mirror) -W52-/Front Passenger Entry Lamp (in Outside Mirror) -W53- are removed and installed the same way, so the description is only given for one side.

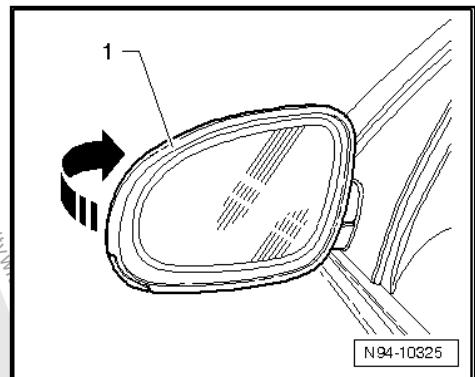


#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

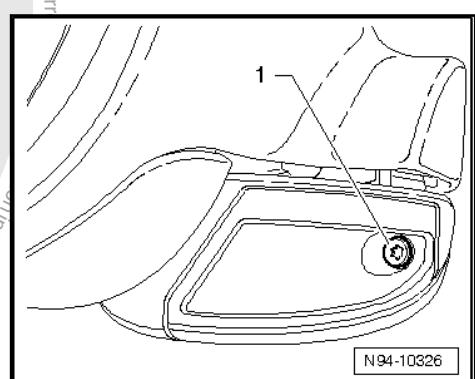
## Removing

- Fold the exterior mirror -1- forward in the direction of the -arrow-.



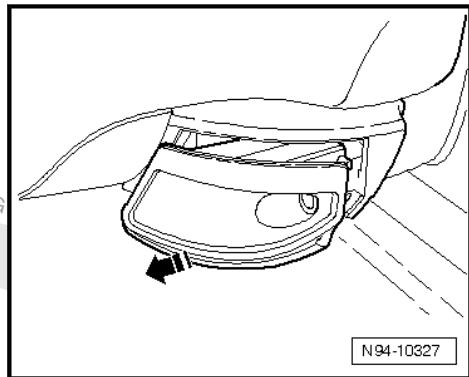
N94-10325

- Remove the bolt -1-.

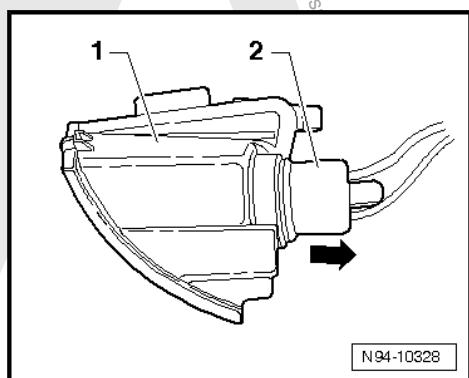


N94-10326

- Remove the Driver Entry Lamp in Exterior Mirror -W52- from the exterior mirror in the direction of the -arrow-.

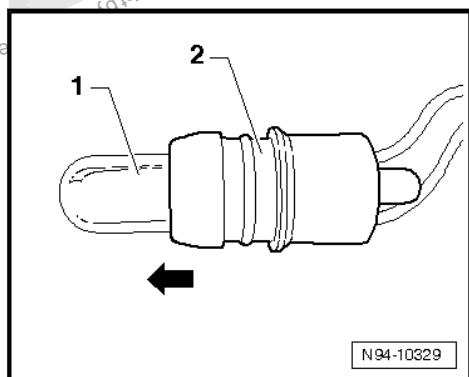


- Remove the socket -2- from the Driver Entry Lamp in Exterior Rearview Mirror -W52- housing -1- in the direction of the -arrow-.



#### Replacing a bulb:

- Pull the bulb -1- out of the socket -2- in the direction of the -arrow-.



Bulb: plug-in bulb 12 V/6 W

#### Installing



##### Caution

- Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.

Install in reverse order of removal. Note the following:



- After installation, perform a function check of the exterior rearview mirror.

## 5.7 Side Marker Lamps in Front Bumper

Removing and installing the Left Front Side Marker Lamp Bulb -M33-/Right Front Side Marker Lamp Bulb -M34- is identical.

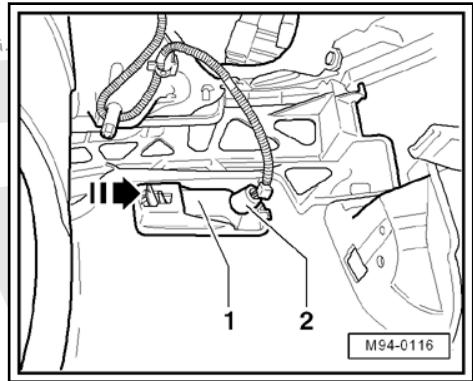


### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

### Removing

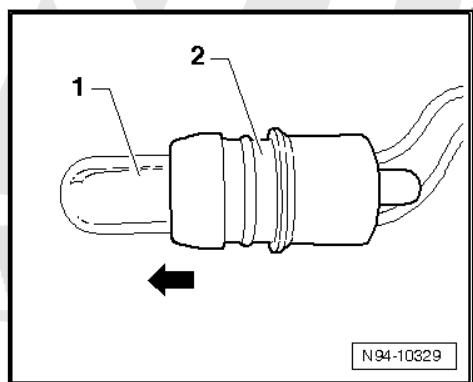
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50; Description and Operation.
- Press the tabs in the direction of the -arrow- and release the side marker lamp -1-.



- Pull the bulb socket -2- out of the side marker lamp.

### Left Front Side Marker Lamp -M33-/Right Front Side Marker Lamp -M34-, replacing

- Remove the Left Front Side Marker Lamp Bulb -M33- -1- from the bulb socket -2- in the direction of the -arrow-.





## Installing



### Caution

- ◆ **Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.**

Install in reverse order of removal. Note the following:

- Make sure the bulb operates.

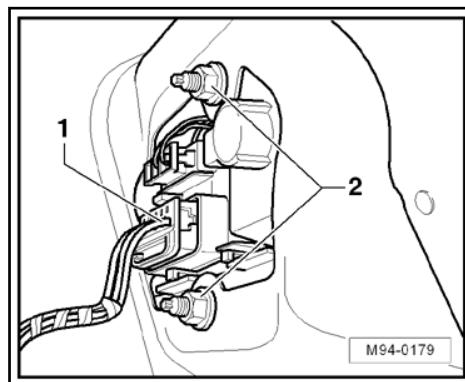
## 5.8 Tail Lamps

- ⇒ [L5.8.1 amp Bulbs, Sedan", page 244](#)
- ⇒ [H5.8.2 older Tail Lamp in Body, Sedan", page 245](#)
- ⇒ [T5.8.3 ail Lamp in Body, Sedan", page 245](#)
- ⇒ [L5.8.4 id Tail Lamp, Sedan", page 246](#)
- ⇒ [L5.8.5 id Tail Lamp Bulb Holder, Sedan", page 247](#)
- ⇒ [W5.8.6 agon", page 248](#)
- ⇒ [C5.8.7 arrier, Wagon", page 249](#)

### 5.8.1 Tail Lamp Bulbs, Sedan

#### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Push the side trim panel to the side.
- Disengage the connector -1- and disconnect.



- Remove the nuts -2- from the tail lamp assembly inside the side panel.
- Remove the tail lamp.

#### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specifications. Refer to [L2.9 amp Bulbs in Body Overview, Sedan", page 133](#).



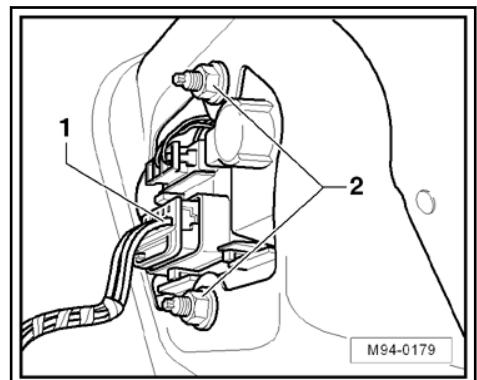
### Note

- ◆ Connector for tail lamp assembly must engage "audibly" when connecting.
- ◆ Be careful not to damage the seals and the corrosion protection.
- Check the gap dimensions between the tail lamp assembly and the body after installing the tail lamp assembly.

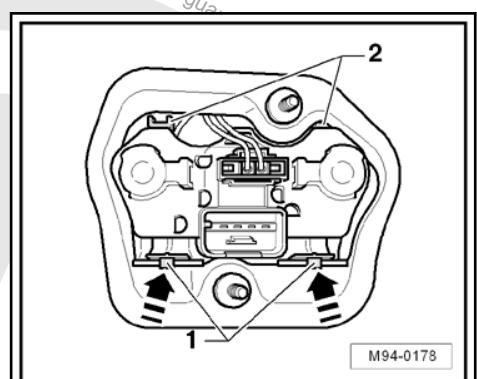
## 5.8.2 Bulb Holder Tail Lamp in Body, Sedan

### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Disengage the connector -1- and disconnect.



- Release the tabs -1- in the direction of the -arrow- and remove the bulb holder from the tail lamp housing -2-



### Installing

Install in reverse order of removal.

## 5.8.3 LED Tail Lamp in Body, Sedan

The tail lamps with LEDs in the side panel cannot be disassembled further.

Components:

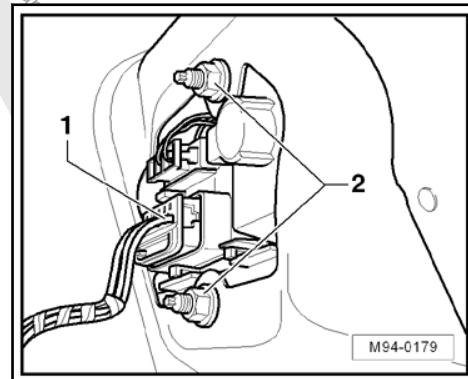
- ◆ Left Tail Lamp Bulb -M4-/Right Tail Lamp Bulb -M2-
- ◆ Left Brake/Tail Lamp Bulb -M21-/Right Brake/Tail Lamp Bulb -M22-



- ◆ Left Rear Turn Signal Bulb -M6-/Right Rear Turn Signal Bulb -M8-

### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Push the side trim panel to the side.
- Disengage the connector -1- and disconnect.



- Remove the nuts -2- from the tail lamp assembly inside the side panel.
- Remove the tail lamp.

### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specifications. Refer to [T2.10 Tail Lamp in Body Overview, Sedan](#); page 134 .



#### Note

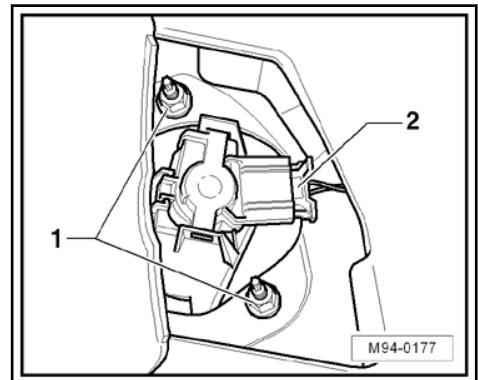
- ◆ The tail lamp assembly connector must engage "audibly" in side panel when connecting.
- ◆ Connector is locked correctly when locking button is engaged again.
- ◆ Be careful not to damage the seals and the corrosion protection.

- Check the gap dimensions between the tail lamp assembly and the body after installing the tail lamp assembly.

## 5.8.4 Rear Lid Tail Lamp, Sedan

### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove the service cover from the trim panel in the rear lid.
- Disengage the connector -2- and disconnect.

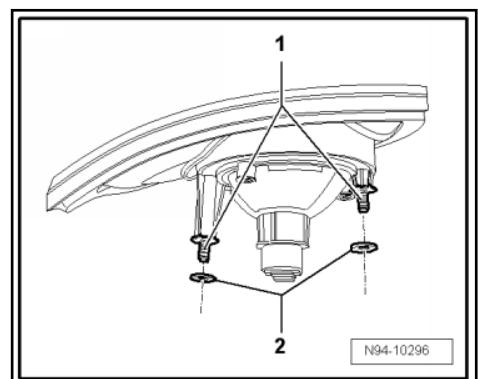


- Remove the nuts -1- from the tail lamp assembly inside the rear lid.
- Remove the tail lamp.

#### Installing

Install in reverse order of removal. Note the following:

- Secure the washer -2- with a glue dot (Loctite®) before connecting to the bolt head -1- in order to prevent the body from falling down.



- Place washers -2- on the bolt head -1-.
- Tighten the threaded connections to the tightening specifications. Refer to [L2.11 amp in Rear Lid Overview, Sedan](#), [page 135](#).
- Check the gap dimensions between the tail lamp assembly and the body after installing the tail lamp assembly.



#### Note

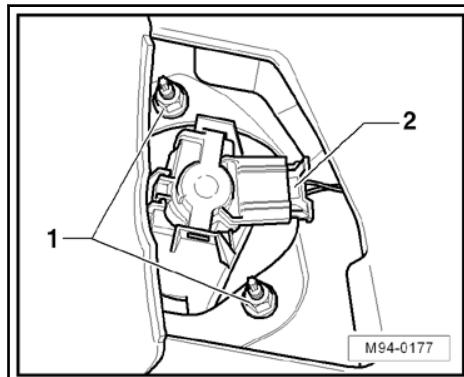
- ◆ *Connector for tail lamp assembly must engage "audibly" when connecting.*
- ◆ *Be careful not to damage the seals and the corrosion protection.*

## 5.8.5 Rear Lid Tail Lamp Bulb Holder, Sedan

#### Removing

Turn off the ignition and all electrical consumers and remove the ignition key.

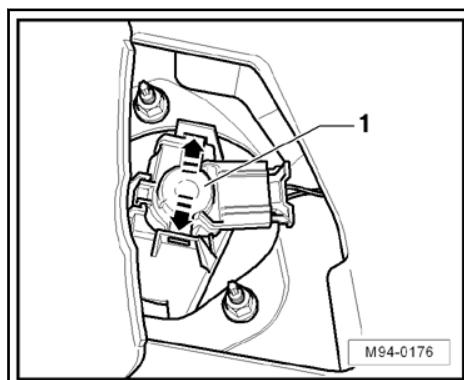
- Remove the service cover from the trim panel in the rear lid.
- Disengage the connector -2- and disconnect.



### Note

*Lower trim of rear lid must not be removed. For better depiction, trim of lower rear lid is removed in the following illustration.*

- Release the tabs in the direction of the -arrow- and remove the bulb holder -1-.



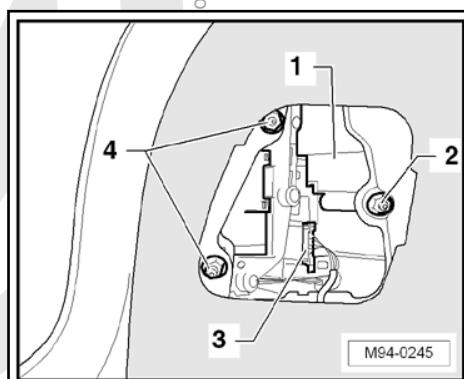
### Installing

Install in reverse order of removal.

## 5.8.6 Taillight, Wagon

### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Push the side trim panel/cover to the side.
- Disengage the connector -3- and disconnect.





- Remove the nuts -2- and -4- from the tail lamp assembly -1-.
- Remove the tail lamp assembly -1-.

### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specifications. Refer to [L2.12 amp in Body Overview, Wagon](#), page 136 .



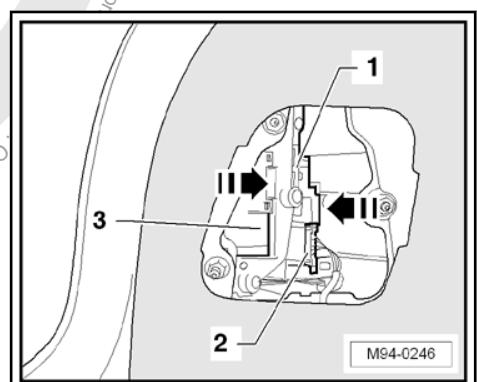
#### Note

- ◆ Connector for tail lamp assembly must engage "audibly" when connecting.
- ◆ Be careful not to damage the seals and the corrosion protection.
- Check the gap dimensions between the tail lamp assembly and the body after installing the tail lamp assembly.

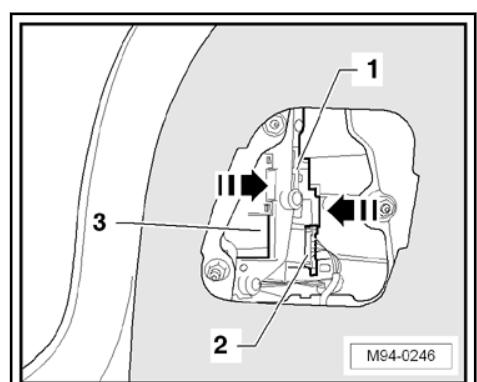
### 5.8.7 Bulb Carrier, Wagon

#### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Push the side trim panel/cover to the side.
- Disengage the connector -2- and disconnect.



- Release the tabs in the direction of the -arrow- and remove the bulb holder -1- tail lamp housing -3-.



### Installing

Install in reverse order of removal.



## 5.9 License Plate Lamp

⇒ L5.9.1 "License Plate Lamp X4/X5", page 250

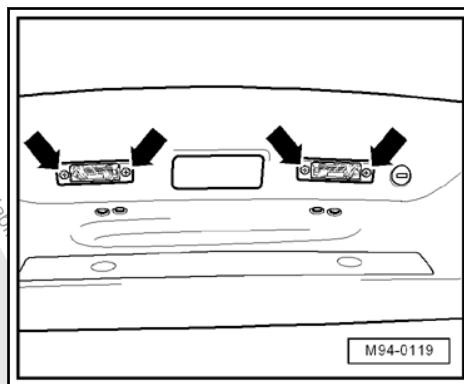
⇒ L5.9.2 "License Plate Lamp X4/X5 Bulb", page 251

### 5.9.1 License Plate Lamp -X4/-X5-

#### License Plate Lamp -X4-, Bolted

##### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove the screws -arrows- from the License Plate Lamp -X4/-X5-.



- Remove the diffusion lens and License Plate Lamp -X4/-X5-.

Bulb: tubular 12 V C5W

##### Installing

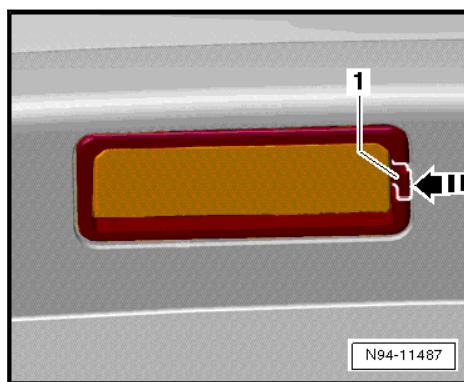
Install in reverse order of removal.

- Tighten the bolts to 1.2 Nm.
- Make sure the license plate lamps are working properly.

#### License Plate Lamp -X4-, Clipped

##### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Press the tab -1- in the direction of the arrow and remove the license plate lamp.





The LEDs cannot be replaced for license plate lamps with LEDs. The entire license plate lamp must be replaced if it becomes damaged.

Bulb: light bulb 12 V W5W

### Installing

Install in reverse order of removal. Note the following:

Insert the license plate lamp into the rear lid so that the connector is facing toward the left side of the vehicle.

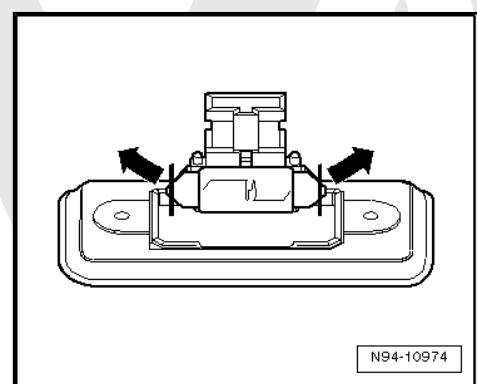
- Make sure the license plate lamps are working properly.

## 5.9.2 License Plate Lamp -X4-/X5- Bulb

### License Plate Lamp -X4-/X5- Bulb, Bolted

#### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove the license plate lamp. Refer to [L5.9.1 license Plate LampX4/X5](#), page 250 .
- Push the contact plates away from each other in the direction of the -arrow- and remove the bulb.



Bulb: tubular 12 V C5W

### Installing



#### Caution

- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***

Installation is performed in the reverse order of removal, noting the following:

- Make sure the license plate lamps are working properly.

### License Plate Lamp -X4-/X5- Bulb, Clipped



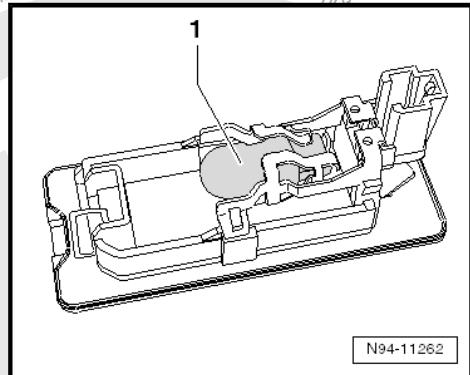
#### Note

*The entire LED must be replaced for license plate lamps with LEDs. Remove the license plate lamp. Refer to [L5.9.1 license Plate LampX4/X5](#), page 250 .*



## Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove the license plate lamp. Refer to [⇒ L5.9.1 license Plate Lamp X4/X5 ", page 250](#).
- If equipped, unclip the bulb cover from the license plate lamp.
- Remove the glass base bulb -1- carefully from the bulb socket.



Bulb: light bulb 12 V W5W

## Installing



### Caution

- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***

Installation is performed in the reverse order of removal, noting the following:

- Make sure the license plate lamps are working properly.

## 5.10 High-Mounted Brake Lamp

⇒ [H5.10.1 High-Mounted Brake Lamp Bulb M25, Sedan", page 252](#)

⇒ [H5.10.2 High-Mounted Brake Lamp Bulb M25, Wagon", page 253](#)

### 5.10.1 High-Mounted Brake Lamp Bulb -M25-, Sedan

If one of the LEDs in the High-Mounted Brake Lamp Bulb -M25- is faulty:

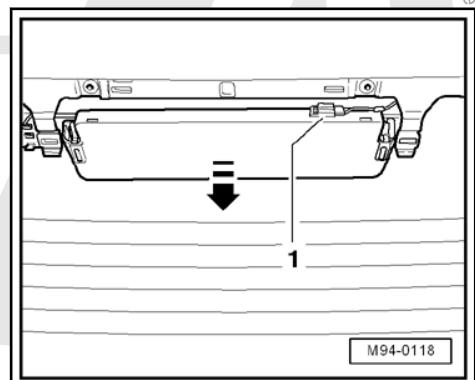
- ◆ The individual LEDs in the High-Mounted Brake Lamp Bulb -M25- are in groups of four and supply electricity as a group.
- ◆ The High-Mounted Brake Lamp Bulb -M25- is designed in such a way that it still meets legal requirements when one LED group fails.
- ◆ If another LED group fails, these legal requirements are no longer met.



- ◆ When one LED group fails, the intact LEDs are given a higher load, by which failure of other LED groups can be assumed in the near future.
- ◆ Replace the High-Mounted Brake Lamp Bulb -M25- if more than 4 separate LEDs have burned out in the High-Mounted Brake Lamp Bulb -M25-.

### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove the roof end strip. Refer to ⇒ Body Interior; Rep. Gr. 70; Removal and Installation.
- Disengage the connector -1- and disconnect.



- Push the High-Mounted Brake Lamp Bulb -M25- in the direction of the -arrow-.

### Installing

Install in reverse order of removal. Note the following:

- Make sure the seal for the High-Mounted Brake Lamp Bulb -M25- fits correctly.

## 5.10.2 High-Mounted Brake Lamp Bulb -M25-, Wagon

### Special tools and workshop equipment required

- ◆ Trim Removal Wedge -T10039/1-

The High-Mounted Brake Lamp Bulb -M25- is located in the roof edge spoiler above the rear window.

The High-Mounted Brake Lamp Bulb -M25- has LEDs.

The High-Mounted Brake Lamp Bulb -M25- cannot be disassembled.

If damaged, the entire High-Mounted Brake Lamp Bulb -M25- must be replaced.



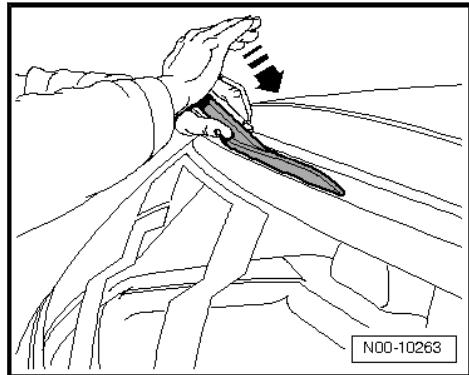
### Caution

- ◆ When removing and installing components in a visible area (switches, covers, trim, etc.), cover areas where a prying tool (Trim Removal Wedge -T10039/1-, Trim Removal Wedge -VAS 3409- or a screwdriver) will be used with commercially available adhesive tape.
- ◆ Ensure that the surrounding seal is not damaged when removing the High-Mounted Brake Lamp Bulb -M25-.

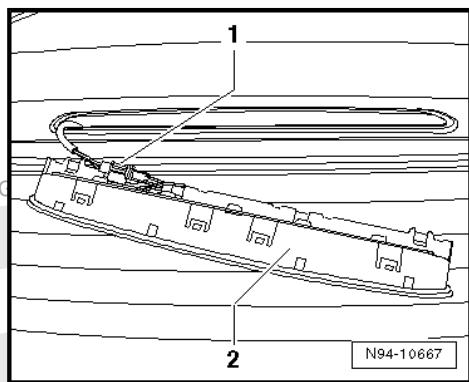


## Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Insert the Trim Removal Wedge -T10039/1- between the upper edge of the High-Mounted Brake Lamp Bulb -M25- and the spoiler on the edge of the roof.



- Press the High-Mounted Brake Lamp Bulb -M25- downward with the Trim Removal Wedge -T10039/1- and remove the upper tabs for the High-Mounted Brake Lamp Bulb -M25- toward the rear.
- Remove the High-Mounted Brake Lamp Bulb -M25- backward out of installation opening in roof edge spoiler, being careful of connected lines.
- Disengage the connector -1- and disconnect.



- Remove the High-Mounted Brake Lamp Bulb -M25- -2-.

## Installing

Install in reverse order of removal. Note the following:



*Make sure the seal for the High-Mounted Brake Lamp Bulb -M25- fits correctly. Seal must not have any bulges and must not be damaged.*

- Attach the High-Mounted Brake Lamp Bulb -M25- to the spoiler on the edge of the roof starting with the bottom edge.



## 5.11 Steering Column Switch Module, through 05/2010

⇒ [C5.11.1 column Switch Components Sequence", page 255](#)

⇒ [S5.11.2 steering Column Electronics Control ModuleJ527 ",  
page 256](#)

⇒ [A5.11.3 irbag Spiral Spring/Return Spring with Slip  
RingF138 ", page 258](#)

⇒ [T5.11.4 urn Signal SwitchE2 ", page 259](#)

⇒ [W5.11.5 indshield Wiper SwitchE ", page 260](#)

⇒ [C5.11.6 olumn Switch Base Carrier", page 261](#)

⇒ [S5.11.7 teering Angle SensorG85 ", page 263](#)

### 5.11.1 Steering Column Switch Components Sequence

When removing the complete steering column switches including base carrier, it is disassembled and steering lock housing is also removed with it. New shear bolts are required for installing steering lock housing.



#### Note

Also, if only one individual component of steering column switch is removed or replaced, the sequence described in the following must always be adhered to.



#### WARNING

- ◆ Risk of airbag deployment.
- ◆ The airbag unit could deploy if mishandled.
- ◆ Follow the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 69; General Information.



#### Caution

Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ [D5.1 isconnecting and Connecting", page 16](#).



#### Note

While removing the steering column switches, ensure that no shavings enter steering column switches when drilling the shear bolts.

#### Removing

- Disconnecting the Battery -A-. Refer to ⇒ [D5.1.1 isconnecting ", page 16](#).
- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48; Removing and Installing.



- Remove the trim from the steering column. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.

Remove the steering column switch components in the following sequence:

- ◆ Steering Column Electronics Control Module -J527-. Refer to ⇒ [S5.11.2 steering Column Electronics Control ModuleJ527](#) , page 256 .
- ◆ Airbag Spiral Spring/Return Spring with Slip Ring -F138-. Refer to ⇒ [A5.11.3 irbag Spiral Spring/Return Spring with Slip RingF138](#) , page 258 .
- ◆ Steering Angle Sensor -G85-. Refer to ⇒ [S5.11.7 steering Angle SensorG85](#) , page 263 .
- ◆ Turn Signal Switch -E2-. Refer to ⇒ [T5.11.4 urn Signal SwitchE2](#) , page 259 .
- ◆ Windshield Wiper Switch -E-. Refer to ⇒ [W5.11.5 indshield Wiper SwitchE](#) , page 260 .
- ◆ Steering column switch mount. Refer to ⇒ [C5.11.6 olumn Switch Base Carrier](#) , page 261 .

#### Installing

Install in reverse order of removal.

- Connecting the Battery -A-. Refer to ⇒ [C5.1.2 onnecting](#) , page 17 .

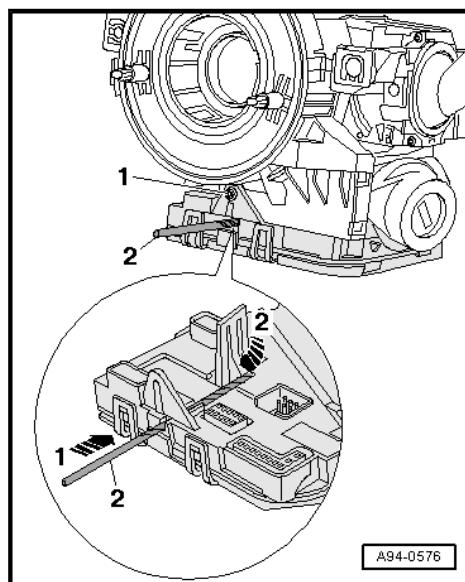
### 5.11.2 Steering Column Electronics Control Module -J527-

After installing a new Steering Column Electronics Control Module -J527-, it must be coded. Refer to ⇒ [page 257](#) .

If steering column switch malfunctions occur, the coding of the Steering Column Electronics Control Module -J527- must be checked ⇒ [page 257](#) .

#### Removing

- Remove the bolt -1-.



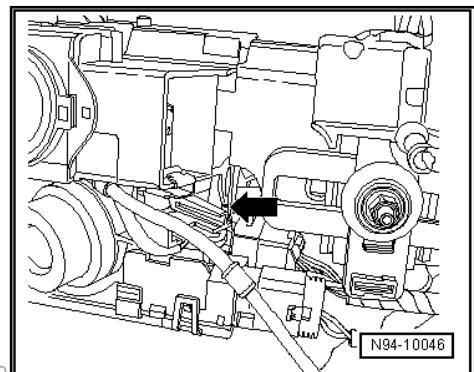
A94-0576



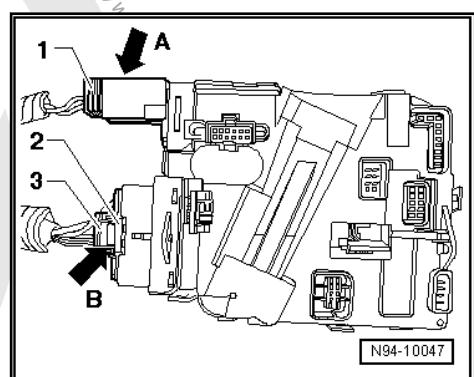
### Caution

**Do NOT try to remove the Steering Column Electronic Systems Control Module -J527- without loosening the center securing clip as described in the next step. The Steering Column Electronic Systems Control Module -J527- would be damaged.**

- On the Steering Column Electronic Systems Control Module -J527-, slide, for example, a wire or a 2.5 mm diameter drill -2- approximately 45 mm into the hole -arrow 1-, whereby the retaining detent is released -arrow 2-.
- Push the rear clip -arrow- on the Steering Column Electronics Control Module -J527-.



- Remove the Steering Column Electronics Control Module -J527- carefully downward from the steering column switch.
- Disengage the connector -1- and disconnect.



- Remove the connector lock -3- from the connector.
- Disengage the connector -2- and disconnect.

### Installing

Install in reverse order of removal. Note the following:

Make sure the pins are not bent and that the connector audibly engages.

### Steering Column Electronics Control Module -J527-, Coding

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.



- Use the **[GO TO]** button to select the “function/component selection” and the following menu options one after the other:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 16 - Steering wheel electronics
- ◆ Functions of steering wheel electronics
- ◆ Code Control Module for steering wheel electronics

#### Steering Column Electronics Control Module -J527- Output Diagnostic Test Mode

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **[GO TO]** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 16 - Steering wheel electronics
  - ◆ Functions of steering wheel electronics
  - ◆ Output Diagnostic Test Mode (DTM) of steering wheel electronics

### 5.11.3 Airbag Spiral Spring/Return Spring with Slip Ring -F138-

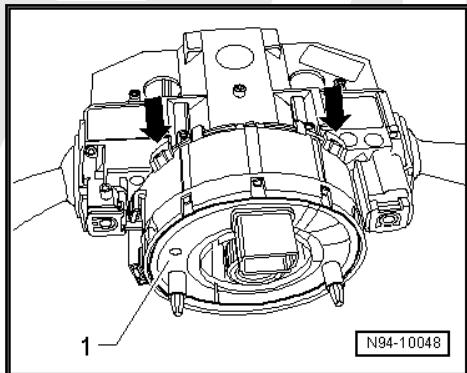


#### WARNING

*When removing, the Airbag Spiral Spring/Return Spring With Slip Ring -F138- must not be twisted out of the center position and the wheels must be “straight ahead”.*

##### Removing

- Lift the retaining strap -arrows- on the Airbag Spiral Spring/Return Spring with Slip Ring -F138- -1- slightly and remove the Airbag Spiral Spring/Return Spring with Slip Ring -F138- toward the rear and from the steering column.





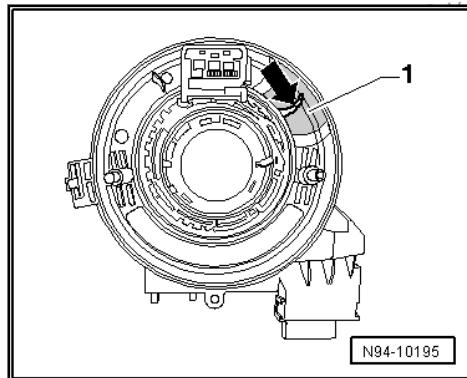
## Installing

Install in reverse order of removal. Note the following:

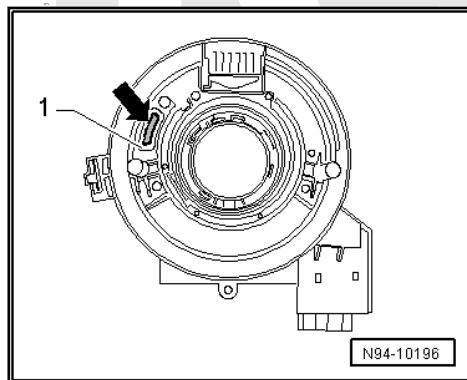
The Airbag Spiral Spring/Return Spring with Slip Ring -F138- must be in the center position and the wheels must be turned to the "straight-ahead position" when installing the Airbag Spiral Spring/Return Spring with Slip Ring -F138-.

The Airbag Spiral Spring/Return Spring With Slip Ring -F138- center position, which depends on the manufacturer, is depicted as follows:

- ◆ The color marked (black square) band -arrow- must be located in viewing window -1-.



- ◆ The color marked (yellow) band -arrow- must be located in viewing window -1-.



If a new Steering Angle Sensor -G85- is installed, then the work procedure "Basic Setting" must be performed [⇒, page 263](#).

### 5.11.4 Turn Signal Switch -E2-

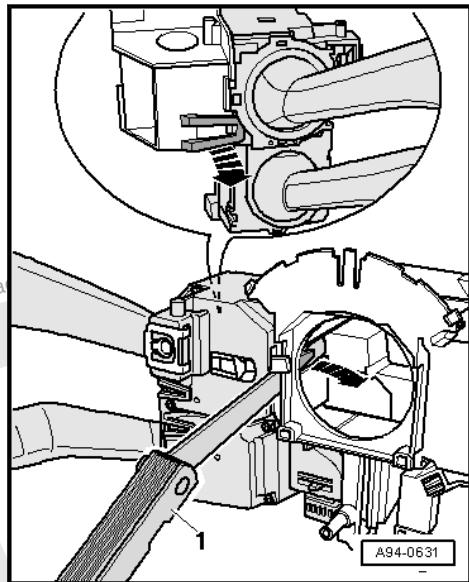
The "Turn Signal Switch" consists of the Turn Signal Switch -E2-/Headlamp Dimmer/Flasher Switch -E4- and the Cruise Control Switch -E45-.



*The illustration shows the steering column switch and Cruise Control Switch -E45- removed.*

#### Removing

- Open the clips -arrows- with a 1.0 mm feeler gauge -1- and remove the "Turn Signal Switch" to the rear.



### Installing

Install in reverse order of removal. Note the following:

The "Turn Signal Switch" must engage audibly.

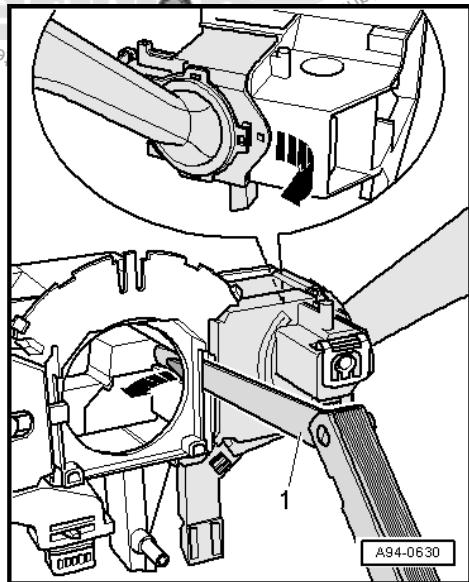
## 5.11.5 Windshield Wiper Switch -E-



*The steering column switch is shown removed.*

### Removing

- Open the clips -arrows- with a 1.0 mm feeler gauge -1- and remove the Windshield Wiper Switch -E- to the rear.



### Installing

Install in reverse order of removal. Note the following:

Windshield Wiper Switch -E- must engage audibly.



## 5.11.6 Steering Column Switch Base Carrier



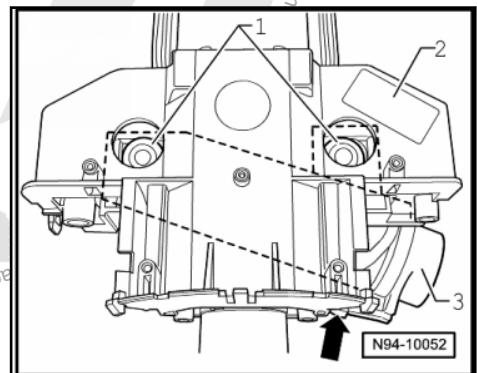
### Caution

*The removal and installation of individual steering column switch components must be done in a specified sequence. Refer to ⇒ [C5.11.1 Column Switch Components Sequence](#), page 255.*

### Special tools and workshop equipment required

- ◆ Angled hand drill
- ◆ Torque Wrench V.A.G 1410-

To remove the steering column switch base carrier -2-, drill out the steering lock housing shear bolts. New shear bolts -1- will be necessary for future installation. Refer to Parts Catalog.



### Caution

- ◆ Before drilling out shear bolts, always make sure that components secured to base carrier are removed beforehand.
- ◆ By drilling out, drill shavings can reach the neighboring components, which can lead to damage and/or malfunctions!



### WARNING

- ◆ Risk of airbag deployment.
- ◆ The airbag unit could deploy if mishandled.
- ◆ Follow the safety precautions when working on the airbag. Refer to ⇒ [Body Interior; Rep. Gr. 69; General Information](#).



### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ [D5.1 Disconnecting and Connecting](#), page 16.*

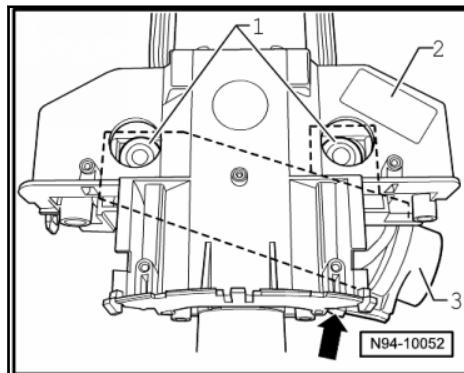


## Removing

- Disconnecting the Battery -A-. Refer to [D5.1.1 disconnecting](#), page 16 .
- Remove all the components attached to the steering column switch base carrier in the sequence given. Refer to [C5.11.1 column Switch Components Sequence](#), page 255 .

The steering column switch base carrier can be removed once all the components attached to it are removed.

- Disconnect the connector -arrow- from the Anti-Theft Immobilizer Reader Coil -D2- -3-.



- Drill out the bolts -1- on the steering lock housing -3-.



### Note

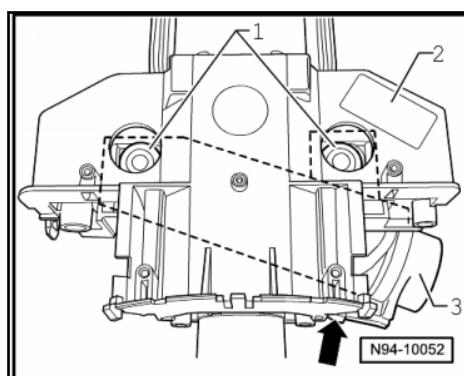
Bolts M8 -1-, core hole diameter 6.8 mm.

- Remove the steering lock housing and the steering column switch base carrier -2- from the steering column to the rear.
- Remove the steering lock housing from the steering column switch base carrier.

## Installing

Install in reverse order of removal. Note the following:

- Insert the steering lock housing into the steering column switch base carrier.
- Slide the steering column switch base carrier -2- as far as possible onto the steering column.



- Connect the connector -arrow- to the induction coil -3-.
- Attach the steering lock housing to the steering column using new shear bolts -1-.

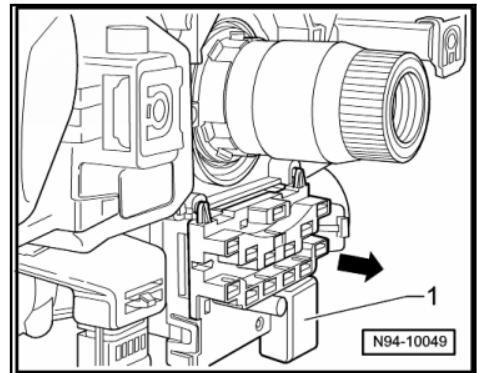


- Tighten the shear bolts -1- until the bolt heads shear off.
- Connecting the Battery -A-. Refer to [C5.1.2 onnecting](#), [page 17](#).

### 5.11.7 Steering Angle Sensor -G85-

#### Removing

- Remove the Steering Angle Sensor -G85- -1- from the steering column switch -arrow-.



#### Note

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For vehicles with generation 3 electromechanical steering, the steering angle sensor is installed in the steering gear from 06/30/2008.

#### Installing

Install in reverse order of removal.

#### Steering Angle Sensor -G85-, Basic Setting

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select [Guided Fault Finding](#).
- Use the [GO TO](#) button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Chassis
  - ◆ Brake system
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 03 - Anti-lock braking system ABS/EDS/ASR/ESP J104
  - ◆ Brake system functions
  - ◆ 13 - Basic setting sensor



## 5.12 Steering Column Switch Module, from 06/2010

- ⇒ [C5.12.1 column Switch Components Sequence", page 264](#) .
- ⇒ [S5.12.2 steering Column Electronics Control Module J527, Valeo", page 265](#) .
- ⇒ [S5.12.3 steering Column Electronics Control Module J527, Kostal", page 267](#) .
- ⇒ [S5.12.4 steering Column Combination Switch E595, Valeo", page 269](#) .
- ⇒ [S5.12.5 steering Column Combination Switch E595, Kostal", page 271](#) .
- ⇒ [C5.12.6 column Switch Base Carrier, Valeo", page 272](#) .
- ⇒ [C5.12.7 column Switch Base Carrier, Kostal", page 274](#) .

### 5.12.1 Steering Column Switch Components Sequence

When removing the complete steering column switches including the steering column switch base carrier, it is disassembled and steering lock housing is also removed with it. New shear bolts are required for installing steering lock housing.



#### Note

Also, if only one individual component of steering column switch is removed or replaced, the sequence described in the following must always be adhered to.



#### WARNING

- ◆ **Risk of airbag deployment.**
- ◆ **The airbag unit could deploy if mishandled.**
- ◆ **Follow the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 69; General Information.**



#### Caution

Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ [D5.1 Disconnecting and Connecting", page 16](#) .

#### Removing

- Disconnecting the Battery -A-. Refer to ⇒ [D5.1.1 Disconnecting", page 16](#) .
- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48; Removing and Installing.
- Remove the trim from the steering column. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.

Remove the steering column switch components in the following sequence:



- ◆ Steering Column Electronics Control Module -J527-. Refer to [⇒ C5.11 column Switch Module, through 05/2010", page 255](#).
- ◆ Steering Column Combination Switch -E595-. Refer to [⇒ A5.11.3 irbag Spiral Spring/Return Spring with Slip RingF138 ", page 258](#).
- ◆ Steering column switch mount. Refer to [⇒ C5.13 column Switch Module, KESSY", page 277](#).

### Installing

Install in reverse order of removal.

- Connecting the Battery -A-. Refer to [⇒ C5.1.2 connecting", page 17](#).

## 5.12.2 Steering Column Electronics Control Module -J527-, Valeo

The Steering Column Electronic Systems Control Module -J527- includes the following components and cannot be disassembled:

- ◆ Airbag Spiral Spring/Return Spring with Slip Ring -F138-
- ◆ Steering Angle Sensor -G85-

Remove the transportation safeguard before installing a new Steering Column Electronic Systems Control Module -J527-.

After installing a new Steering Column Electronics Control Module -J527-, it must be coded. Refer to [⇒ C5.12 column Switch Module, from 06/2010", page 264](#).

If steering column switch malfunctions occur, the coding of the Steering Column Electronics Control Module -J527- must be checked [⇒ C5.12 column Switch Module, from 06/2010", page 264](#).

The procedure for removing and installing the Steering Column Electronics Control Module -J527- differs between the two manufacturers.



### Caution

*Always follow the sequence when removing and installing steering column switch components. Refer to [⇒ C5.12.1 column Switch Components Sequence", page 264](#).*



### WARNING

- ◆ *Risk of airbag deployment.*
- ◆ *The airbag unit could deploy if mishandled.*
- ◆ *Follow the safety precautions when working on the airbag. Refer to [⇒ Body Interior; Rep. Gr. 69; General Information](#).*



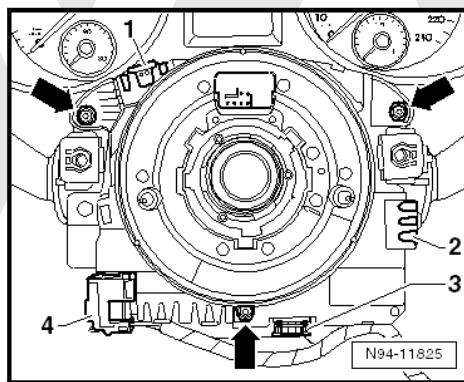
### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [⇒ D5.1 Disconnecting and Connecting", page 16](#).*



## Removing

- Disconnecting the Battery -A-. Refer to [D5.1.1 disconnecting](#), page 16 .
- Remove the steering wheel. Refer to [Suspension, Wheels, Steering; Rep. Gr. 48; Removal and Installation](#).
- Remove the trim from the steering column. Refer to [Body Interior; Rep. Gr. 68; Removal and Installation](#).
- Disconnect the connectors (depending on the vehicle equipment level) -1-, -2-, -3- and -4-.



### Note

*Do not twist the Airbag Spiral Spring/Return Spring With Slip Ring -F138- on the Steering Column Electronic Systems Control Module -J527- out of its center position when removing it. The front wheels must be in the "straight-ahead position".*

- Remove the screws -arrows- and remove the Steering Column Electronic Systems Control Module -J527- from the steering column switch.

## Installing

Install in reverse order of removal. Note the following:



### Caution

*The return lever on the Turn Signal Switch -E2- could break off when installing the Steering Column Electronic Systems Control Module -J527-.*

*The Turn Signal Switch -J527- must be in the 0 position when installing the Steering Column Electronics Control Module -E2-.*

- Slide the Steering Column Electronic Systems Control Module -J527- onto the steering column switch.
- Install the screws for the Steering Column Electronic Systems Control Module -J527- and tighten them to 1.5 Nm.
- Connecting the Battery -A-. Refer to [C5.1.2 onnecting](#), page 17 .

## Steering Column Electronics Control Module -J527-, Coding

- Connect the Vehicle Diagnostic Tester.
- Select [Guided Fault Finding](#).



- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 16 - Steering wheel electronics
- ◆ Functions of steering wheel electronics
- ◆ Code Control Module for steering wheel electronics

#### **Steering Column Electronics Control Module -J527- Output Diagnostic Test Mode**

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 16 - Steering wheel electronics
- ◆ Steering column electronics functions
- ◆ Output Diagnostic Test Mode (DTM) of steering wheel electronics

### **5.12.3 Steering Column Electronics Control Module -J527-, Kostal**

The Steering Column Electronic Systems Control Module - J527- includes the following components and cannot be disassembled:

- ◆ Airbag Spiral Spring/Return Spring with Slip Ring -F138-
- ◆ Steering Angle Sensor -G85-

Remove the transportation safeguard before installing a new Steering Column Electronic Systems Control Module -J527-.

After installing a new Steering Column Electronics Control Module -J527-, it must be coded. Refer to [⇒ C5.12.1 Column Switch Module, from 06/2010](#), page 264 .

If steering column switch malfunctions occur, the coding of the Steering Column Electronics Control Module -J527- must be checked [⇒ C5.12.1 Column Switch Module, from 06/2010](#), page 264 .

The procedure for removing and installing the Steering Column Electronics Control Module -J527- differs between the two manufacturers.



#### **Caution**

*Always follow the sequence when removing and installing steering column switch components. Refer to [⇒ C5.12.1 Column Switch Components Sequence](#), page 264 .*



### WARNING

- ◆ **Risk of airbag deployment.**
- ◆ **The airbag unit could deploy if mishandled.**
- ◆ **Follow the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 69; General Information.**



### Caution

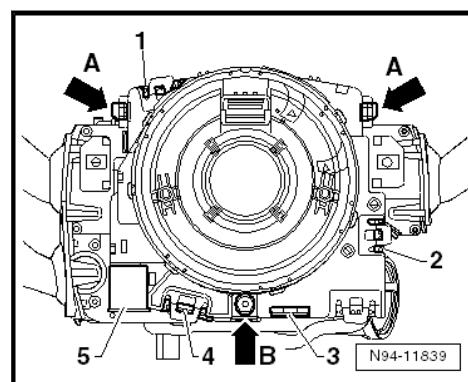
*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ D5.1 Disconnecting and Connecting", page 16.*

## Removing

- Disconnecting the Battery -A-. Refer to ⇒ [D5.1.1 Disconnecting](#), page 16 .

Remove the following components in the correct order:

- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48; Removal and Installation.
- Remove the trim from the steering column. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Disconnect the connectors (depending on the vehicle equipment level) -1-, -2-, -3-, -4- and -5-.



- Remove the screw -arrow B-.



*Do not twist the Airbag Spiral Spring/Return Spring With Slip Ring -F138- on the Steering Column Electronic Systems Control Module -J527- out of its center position when removing it. The front wheels must be in the "straight-ahead position".*

- Open the tabs -arrows A- and remove the Steering Column Electronics Control Module -J527- from the steering column switch.

## Installing

Install in reverse order of removal. Note the following:



### Caution

*The return lever on the Turn Signal Switch -E2- could break off when installing the Steering Column Electronic Systems Control Module -J527-.*

*The Turn Signal Switch -J527- must be off when installing the Steering Column Electronics Control Module -E2-.*

- Slide the Steering Column Electronics Control Module - J527- onto the steering column switch until it latches secure.
- Install the screw for the Steering Column Electronics Control Module -J527- on the steering column switch and then tighten it to 1.5 Nm.
- Connecting the Battery -A-. Refer to [C5.1.2 connecting](#), [page 17](#).

### Steering Column Electronics Control Module -J527-, Coding

- Connect the Vehicle Diagnostic Tester.
- Select [Guided Fault Finding](#).
- Use the [GO TO](#) button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 16 - Steering wheel electronics
  - ◆ Functions of steering wheel electronics
  - ◆ Code Control Module for steering wheel electronics

### Steering Column Electronics Control Module -J527- Output Diagnostic Test Mode

- Connect the Vehicle Diagnostic Tester.
- Select [Guided Fault Finding](#).
- Use the [GO TO](#) button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 16 - Steering wheel electronics
  - ◆ Steering column electronics functions
  - ◆ Output Diagnostic Test Mode (DTM) of steering wheel electronics

### 5.12.4 Steering Column Combination Switch -E595-, Valeo

Depending on equipment, the Steering Column Combination Switch -E595- consists of the following components and cannot be disassembled:

- ◆ Turn Signal Switch -E2-
- ◆ Windshield Wiper Switch -E-



◆ Cruise Control Switch -E45-

The procedure for removing and installing the Steering Column Combination Switch -E595- differs depending on the manufacturer.



**Caution**

**Always follow the sequence when removing and installing steering column switch components. Refer to ⇒ C5.12.1 *Column Switch Components Sequence*, page 264 .**



**WARNING**

- ◆ **Risk of airbag deployment.**
- ◆ **The airbag unit could deploy if mishandled.**
- ◆ **Follow the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 69; General Information.**

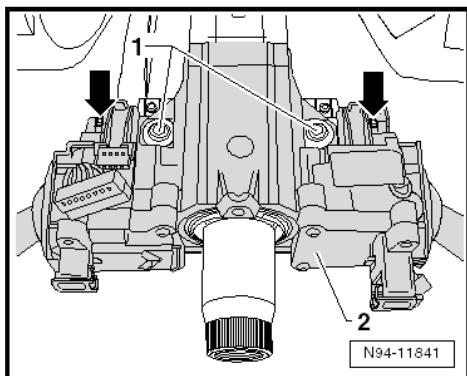


**Caution**

**Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ page 16 .**

## Removing

- Disconnecting the Battery -A-. Refer to ⇒ D5.1.1 *isconnecting*, page 16 .
- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48; Removal and Installation.
- Remove the trim from the steering column. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Remove the Steering Column Electronics Control Module -J527-. Refer to ⇒ C5.11 *olumn Switch Module, through 05/2010*, page 255 .
- Open the tabs -arrows- and remove the Steering Column Combination Switch -E595- from the steering column switch base carrier.





## Installing

- Slide the Steering Column Combination Switch -E595- into the guides on the steering column switch base carrier until it latches secure.
- Connecting the Battery -A-. Refer to [⇒ C5.1.2 onnecting”, page 17](#).

Further installation is done in reverse order of removal.

### 5.12.5 Steering Column Combination Switch -E595-, Kostal

Depending on equipment, the Steering Column Combination Switch -E595- consists of the following components and cannot be disassembled:

- ◆ Turn Signal Switch -E2-
- ◆ Windshield Wiper Switch -E-
- ◆ Cruise Control Switch -E45-

The procedure for removing and installing the Steering Column Combination Switch -E595- differs depending on the manufacturer.



#### Caution

*Always follow the sequence when removing and installing steering column switch components. Refer to [⇒ C5.12.1 olumn Switch Components Sequence”, page 264](#).*



#### WARNING

- ◆ *Risk of airbag deployment.*
- ◆ *The airbag unit could deploy if mishandled.*
- ◆ *Follow the safety precautions when working on the airbag. Refer to [⇒ Body Interior; Rep. Gr. 69; General Information](#).*



#### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [⇒ D5.1 isconnecting and Connecting”, page 16](#).*

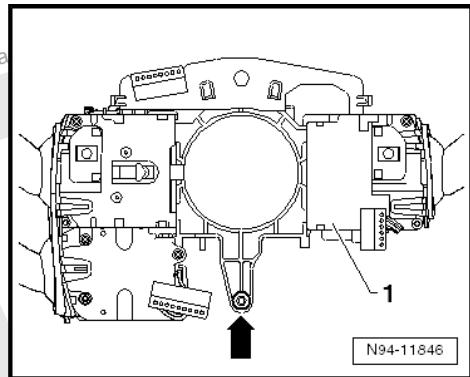
## Removing

- Disconnecting the Battery -A-.Refer to [⇒ D5.1.1 isconnect-ing”, page 16](#).
- Remove the steering wheel. Refer to [⇒ Suspension, Wheels, Steering; Rep. Gr. 48; Removal and Installation](#).
- Remove the trim from the steering column. Refer to [⇒ Body Interior; Rep. Gr. 68; Removal and Installation](#).
- Remove the Steering Column Electronics Control Module -J527-. Refer to [⇒ C5.11 olumn Switch Module, through 05/2010”, page 255](#).



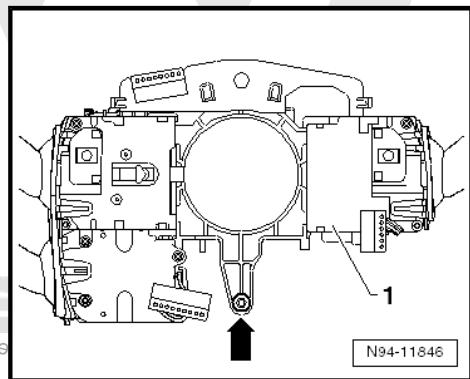


- Remove the screw -arrow- and remove the complete Steering Column Combination Switch -E595- -1- from the steering column switch base carrier.



### Installing

- Slide the Steering Column Combination Switch -E595- into the slide on the steering column switch base carrier.
- Install the screw -arrow-.



- Connecting the Battery -A-. Refer to [⇒ C5.1.2 connecting](#), page 17 .

Further installation is done in reverse order of removal.

## 5.12.6 Steering Column Switch Base Carrier, Valeo

### Special tools and workshop equipment required

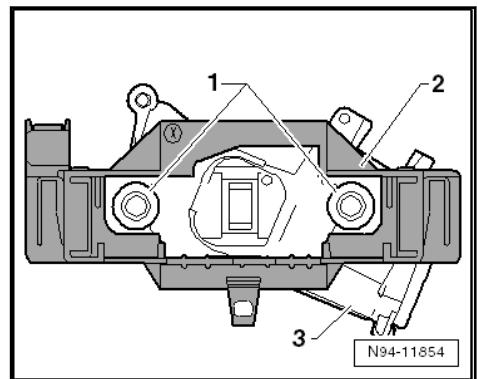
- ◆ Angled hand drill
- ◆ Torque Wrench -V.A.G 1410-



#### Caution

*Always follow the sequence when removing and installing steering column switch components. Refer to [⇒ C5.12.1 column Switch Components Sequence](#), page 264 .*

The shear bolts -1- of the steering lock housing must be drilled out in order to remove the steering column switch mount -2-. New shear bolts will be needed for installation later. Refer to the Parts Catalog.



### Caution

- ◆ Before drilling out shear bolts, always make sure all components secured to steering column switch base carrier are removed beforehand.
- ◆ By drilling out, drill shavings can reach the neighboring components, which can lead to damage and malfunctions!
- ◆ When removing the steering column switch components, observe the specified sequence ⇒ [C5.12.1 Column Switch Components Sequence](#), page 264 .



### WARNING

- ◆ Risk of airbag deployment.
- ◆ The airbag unit could deploy if mishandled.
- ◆ Follow the safety precautions when working on the airbag. Refer to ⇒ [Body Interior; Rep. Gr. 69; General Information](#).



### Caution

Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ [D5.1 Disconnecting and Connecting](#), page 16 .

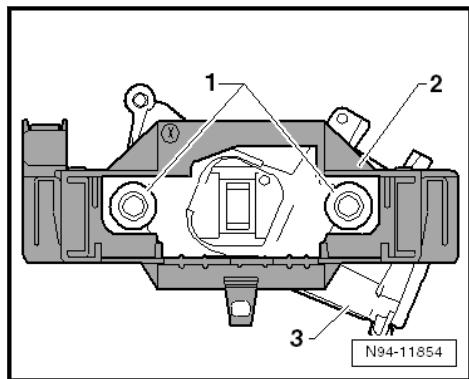
## Removing

- Disconnecting the Battery -A-. Refer to ⇒ [D5.1.1 Disconnecting](#), page 16
- Remove all the components attached to the steering column switch base carrier in the sequence given. Refer to ⇒ [C5.12.1 Column Switch Components Sequence](#), page 264 .

The steering column switch base carrier can be removed once all the components attached to it are removed.

- Drill out the shear bolts -1- on the steering lock housing -3-.



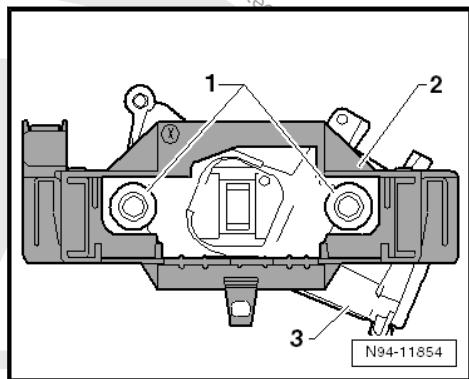


*Bolts M8 -1-, core hole diameter 6.8 mm.*

- Remove the steering lock housing -3- and the steering column switch base carrier -2- from the steering column.
- Remove the steering lock housing from the steering column switch base carrier.

#### Installing

- Install the steering lock housing -3- into the steering column switch base carrier -2-.



- Slide the Steering Column Combination Switch -E595- onto the steering column switch base carrier until it latches.
- Slide the pre-assembled unit from the steering lock housing, the steering column switch base carrier and the Steering Column Combination Switch -E595- all the way onto the steering column and line them up with the threaded holes.
- Attach the steering lock housing -3- to the steering column with new shear bolts -1-.
- Tighten the new shear bolts -1- until the bolt heads shear off.
- Connecting the Battery -A-. Refer to [⇒ C5.1.2 connecting](#), [page 17](#).

Further installation is done in reverse order of removal.

#### 5.12.7 Steering Column Switch Base Carrier, Kostal

##### Special tools and workshop equipment required

- ◆ Angled hand drill



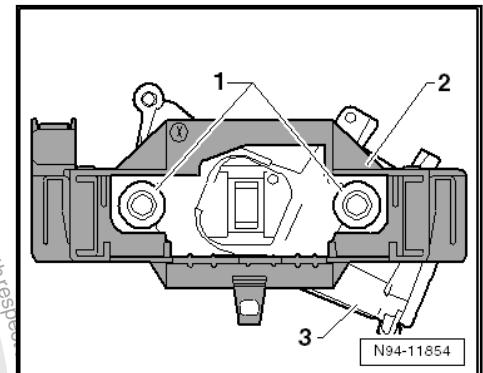
◆ Torque Wrench -V.A.G 1410-



**Caution**

*Always follow the sequence when removing and installing steering column switch components. Refer to ⇒ C5.12.1 column Switch Components Sequence", page 264 .*

The shear bolts -1- of the steering lock housing must be drilled out in order to remove the steering column switch mount -2-. New shear bolts will be needed for installation later. Refer to the Parts Catalog.



**Caution**

- ◆ Before drilling out shear bolts, always make sure all components secured to steering column switch base carrier are removed beforehand.
- ◆ By drilling out, drill shavings can reach the neighboring components, which can lead to damage and malfunctions!

◆ When removing the steering column switch components, observe the specified sequence ⇒ C5.12.1 column Switch Components Sequence", page 264 .



**WARNING**

- ◆ Risk of airbag deployment.
- ◆ The airbag unit could deploy if mishandled.
- ◆ Follow the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 69; General Information.



**Caution**

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ page 16 .*

### Removing

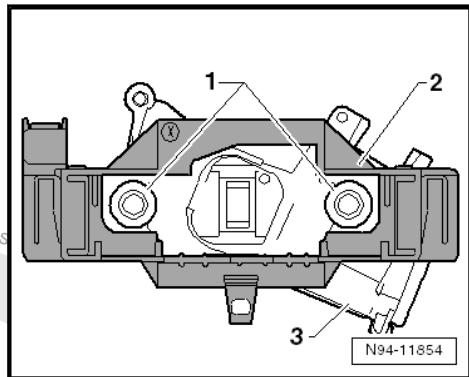
- Disconnecting the Battery -A-. Refer to ⇒ D5.1.1 isconnecting", page 16 .



- Remove all the components attached to the steering column switch base carrier in the sequence given. Refer to [C5.12.1 column Switch Components Sequence](#), page 264 .

The steering column switch base carrier can be removed one all the components attached to it are removed.

- Drill out the shear bolts -1- on the steering lock housing -3-.



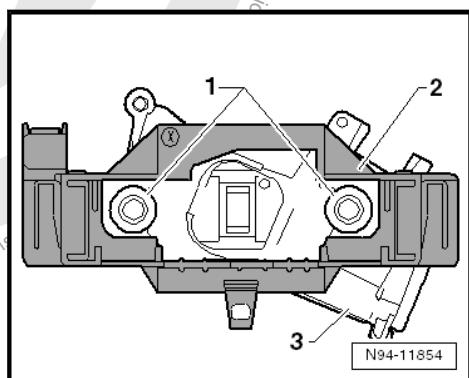
Note

Bolts M8 -1-, core hole diameter 6.8 mm.

- Remove the steering lock housing -3- and the steering column switch base carrier -2- from the steering column.
- Remove the steering lock housing from the steering column switch base carrier.

**Installing**

- Install the steering lock housing -3- into the steering column switch base carrier -2-.



- Slide the Steering Column Combination Switch -E595- onto the steering column switch base carrier and install the lower screw.
- Slide the pre-assembled unit from the steering lock housing, the steering column switch base carrier and the Steering Column Combination Switch -E595- all the way onto the steering column and line them up with the threaded holes.
- Attach the steering lock housing -3- to the steering column with new shear bolts -1-.
- Tighten the new shear bolts -1- until the bolt heads shear off.
- Connecting the Battery -A-. Refer to [C5.1.2 onnecting](#), page 17 .



Further installation is done in reverse order of removal.

## 5.13 Steering Column Switch Module, KES-SY

- ⇒ [C5.13.1 column Switch Module Components, Sequence", page 277](#)
- ⇒ [S5.13.2 steering Column Electronics Control ModuleJ527, Valeo", page 278](#)
- ⇒ [S5.13.3 steering Column Electronics Control ModuleJ527, Kostal", page 280](#)
- ⇒ [S5.13.4 steering Column Combination SwitchE595, Valeo", page 282](#)
- ⇒ [S5.13.5 steering Column Combination SwitchE595, Kostal", page 283](#)
- ⇒ [C5.13.6 column Switch Base Carrier, Valeo", page 285](#)
- ⇒ [C5.13.7 column Switch Base Carrier, Kostal", page 288](#)
- ⇒ [E5.13.8 Electronic Steering Column Lock Control ModuleJ764, Replacing", page 290](#)
- ⇒ [E5.13.9 Electronic Steering Column Lock Control ModuleJ764 ", page 291](#)

### 5.13.1 Steering Column Switch Module Components, Sequence

The shear bolts must be drilled out when removing the entire steering column switch including the steering column switch base carrier and the Electronic Steering Column Lock Control Module -J764-. New shear bolts are needed when installing the Electronic Steering Column Lock Control Module -J764-.



#### Note

Also, if only one individual component of steering column switch is removed or replaced, the sequence described in the following must always be adhered to.



#### WARNING

- ◆ Risk of airbag deployment.
- ◆ The airbag unit could deploy if mishandled.
- ◆ Follow the safety precautions when working on the airbag. Refer to ⇒ [Body Interior; Rep. Gr. 69; General Information](#).



#### Caution

Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ [D5.1 Disconnecting and Connecting", page 16](#).

#### Removing

- Disconnecting the Battery -A-. Refer to ⇒ [D5.1.1 Disconnecting", page 16](#).



- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48; Removal and Installation.
- Remove the trim from the steering column. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.

Remove the steering column switch components in the following sequence:

- ◆ Steering Column Electronics Control Module -J527-. Refer to ⇒ [C5.12 column Switch Module, from 06/2010](#), page 264 .
- ◆ Steering Column Combination Switch -E595-. Refer to Removing and installing. Refer to ⇒ [S5.12.4 teering Column Combination Switch E595, Valeo](#), page 269 or ⇒ [S5.12.5 teering Column Combination Switch E595, Kostal](#), page 271 .
- ◆ Electronic Steering Column Lock Control Module -J764-. Refer to ⇒ [E5.13.9 lectronic Steering Column Lock Control ModuleJ764](#), page 291 .
- ◆ Steering column switch mount. Refer to ⇒ [E5.13.9 lectronic Steering Column Lock Control ModuleJ764](#), page 291 .

#### Installing

Install in reverse order of removal.

- Connecting the Battery -A-. Refer to ⇒ [C5.1.2 onnecting](#), page 17 .

### 5.13.2 Steering Column Electronics Control Module -J527-, Valeo

The Steering Column Electronic Systems Control Module - J527- includes the following components and cannot be disassembled:

- ◆ Airbag Spiral Spring/Return Spring with Slip Ring -F138-
- ◆ Steering Angle Sensor -G85-

Remove the transportation safeguard before installing a new Steering Column Electronic Systems Control Module -J527-.

After installing a new Steering Column Electronics Control Module -J527-, it must be coded. Refer to ⇒ , page 257 .

If steering column switch malfunctions occur, the coding of the Steering Column Electronics Control Module -J527- must be checked ⇒ page 257 .

The procedure for removing and installing the Steering Column Electronics Control Module -J527- differs between the two manufacturers.



#### Caution

*The removal and installation of individual steering column switch components must be done in a specified sequence. Refer to ⇒ [C5.13.1 olumn Switch Module Components, Sequence](#), page 277 .*



### WARNING

- ◆ *Risk of airbag deployment.*
- ◆ *The airbag unit could deploy if mishandled.*
- ◆ *Follow the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 69; General Information.*

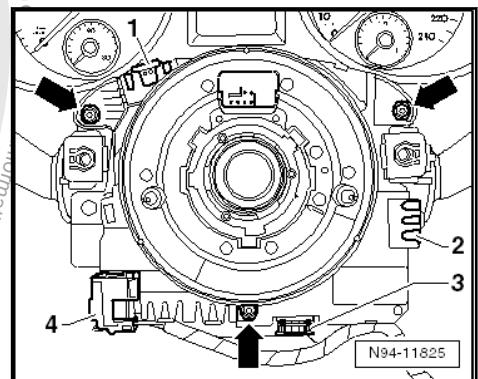


### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ D5.1 Disconnecting and Connecting", page 16*

### Removing

- Disconnecting the Battery -A-. Refer to ⇒ D5.1.1 Disconnecting", page 16 .
- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48; Removal and Installation.
- Remove the trim from the steering column. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Disconnect the connectors (depending on the vehicle equipment level) -1-, -2-, -3- and -4-.



### Note

*Do not twist the Airbag Spiral Spring/Return Spring With Slip Ring -F138- on the Steering Column Electronic Systems Control Module -J527- out of its center position when removing it. The front wheels must be in the "straight-ahead position".*

- Remove the screws -arrows- and remove the Steering Column Electronic Systems Control Module -J527- from the steering column switch.

### Installing

Install in reverse order of removal. Note the following:



### Caution

*The return lever on the Turn Signal Switch -E2- could break off when installing the Steering Column Electronic Systems Control Module -J527-.*

*The Turn Signal Switch -J527- must be in the 0 position when installing the Steering Column Electronics Control Module -E2-*

- Slide the Steering Column Electronic Systems Control Module -J527- onto the steering column switch.
- Install the screws for the Steering Column Electronic Systems Control Module -J527- and tighten them to 1.5 Nm.
- Connecting the Battery -A-. Refer to [⇒ C5.1.2 connecting](#), [page 17](#).

### Steering Column Electronics Control Module -J527-, Coding

- Connect the Vehicle Diagnostic Tester.
- Select [Guided Fault Finding](#).
- Use the [GO TO](#) button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 16 - Steering wheel electronics
  - ◆ Functions of steering wheel electronics
  - ◆ Code Control Module for steering wheel electronics

### 5.13.3 Steering Column Electronics Control Module -J527-, Kostal

The Steering Column Electronic Systems Control Module -J527- includes the following components and cannot be disassembled:

- ◆ Airbag Spiral Spring/Return Spring with Slip Ring -F138-
- ◆ Steering Angle Sensor -G85-

Remove the transportation safeguard before installing a new Steering Column Electronic Systems Control Module -J527-.

After installing a new Steering Column Electronics Control Module -J527-, it must be coded. Refer to [⇒ page 257](#).

If steering column switch malfunctions occur, the coding of the Steering Column Electronics Control Module -J527- must be checked [⇒ , page 257](#).

The procedure for removing and installing the Steering Column Electronics Control Module -J527- differs between the two manufacturers.



### Caution

*The removal and installation of individual steering column switch components must be done in a specified sequence. Refer to ⇒ C5.13.1 **column Switch Module Components, Sequence**, page 277.*



### WARNING

- ◆ *Risk of airbag deployment.*
- ◆ *The airbag unit could deploy if mishandled.*
- ◆ *Follow the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 69; General Information.*

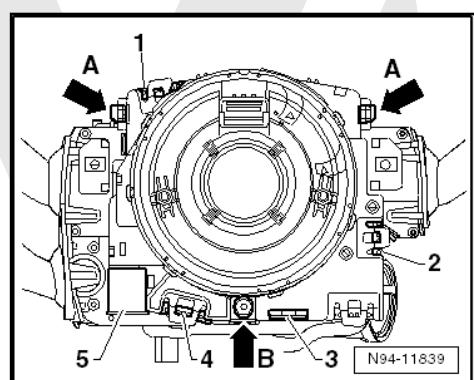


### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ D5.1 **Disconnecting and Connecting**, page 16.*

### Removing

- Disconnecting the Battery -A-. Refer to ⇒ D5.1.1 **Disconnecting**, page 16 .
- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48; Removal and Installation.
- Remove the trim from the steering column. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Disconnect the connectors (depending on the vehicle equipment level) -1-, -2-, -3-, -4- and -5-.



- Remove the screw -arrow B-.



### Note

*Do not twist the Airbag Spiral Spring/Return Spring With Slip Ring -F138- on the Steering Column Electronic Systems Control Module -J527- out of its center position when removing it. The front wheels must be in the "straight-ahead position".*



- Open the tabs-arrows A- and remove the Steering Column Electronics Control Module -J527- from the steering column switch.

### Installing

Install in reverse order of removal. Note the following:



#### Caution

*The return lever on the Turn Signal Switch -E2- could break off when installing the Steering Column Electronic Systems Control Module -J527-.*

*The Turn Signal Switch -J527- must be in the 0 position when installing the Steering Column Electronics Control Module -E2-.*

- Slide the Steering Column Electronic Systems Control Module -J527- onto the steering column switch.
- Install the screw for the Steering Column Electronics Control Module -J527- on the steering column switch and then tighten it to 1.5 Nm.  

- Connecting the Battery. A-. Refer to [⇒ C5.1.2 Connecting](#), [page 17](#).

### Steering Column Electronics Control Module -J527-, Coding

- Connect the Vehicle Diagnostic Tester.
- Select [Guided Fault Finding](#).
- Use the [GO TO](#) button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 16 - Steering wheel electronics
  - ◆ Functions of steering wheel electronics
  - ◆ Code Control Module for steering wheel electronics

### 5.13.4 Steering Column Combination Switch -E595-, Valeo

Depending on equipment, the Steering Column Combination Switch -E595- consists of the following components and cannot be disassembled:

- ◆ Turn Signal Switch -E2-
- ◆ Windshield Wiper Switch -E-
- ◆ Cruise Control Switch -E45-



#### Caution

*The removal and installation of individual steering column switch components must be done in a specified sequence. Refer to [⇒ C5.13.1 Column Switch Module Components, Sequence](#), [page 277](#).*



### WARNING

- ◆ *Risk of airbag deployment.*
- ◆ *The airbag unit could deploy if mishandled.*
- ◆ *Follow the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 69; General Information.*

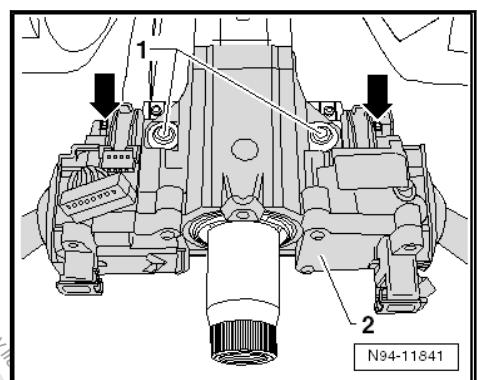


### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ D5.1 Disconnecting and Connecting", page 16 .*

#### Removing

- Disconnecting the Battery -A-. Refer to ⇒ D5.1.1 Disconnecting", page 16 .
- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48; Removal and Installation.
- Remove the trim from the steering column. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Remove the Steering Column Electronics Control Module -J527-. Refer to .



- Open the tabs -arrows- and remove the complete Steering Column Combination Switch -E595- from the steering column switch base carrier.

#### Installing

Slide the Steering Column Combination Switch -E595- into the guides on the steering column switch base carrier until it latches secure.

Connecting the Battery -A-. Refer to ⇒ C5.1.2 Connecting", page 17 .

Install in reverse order of removal.

### 5.13.5 Steering Column Combination Switch -E595-, Kostal

Depending on equipment, the Steering Column Combination Switch -E595- consists of the following components and cannot be disassembled:





- ◆ Turn Signal Switch -E2-
- ◆ Windshield Wiper Switch -E-
- ◆ Cruise Control Switch -E45-



**Caution**

*The removal and installation of individual steering column switch components must be done in a specified sequence. Refer to ⇒ **C5.13.1 Column Switch Module Components, Sequence**, page 277.*



**WARNING**

- ◆ *Risk of airbag deployment.*
- ◆ *The airbag unit could deploy if mishandled.*
- ◆ *Follow the safety precautions when working on the airbag. Refer to ⇒ **Body Interior; Rep. Gr. 69; General Information**.*

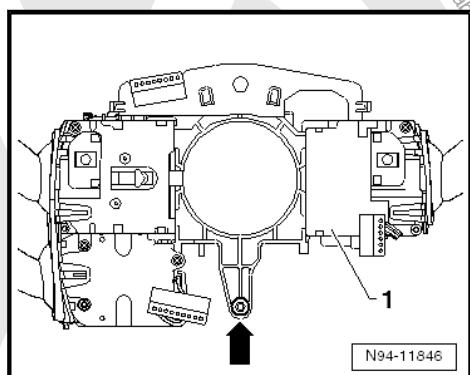


**Caution**

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ **D5.1 Disconnecting and Connecting**, page 16.*

## Removing

- Disconnecting the Battery -A-. Refer to ⇒ **D5.1.1 Disconnecting**, page 16 .
- Remove the steering wheel. Refer to ⇒ **Suspension, Wheels, Steering; Rep. Gr. 48; Removal and Installation**.
- Remove the trim from the steering column. Refer to ⇒ **Body Interior; Rep. Gr. 68; Removal and Installation**.
- Remove the Steering Column Electronics Control Module -J527-. Refer to .

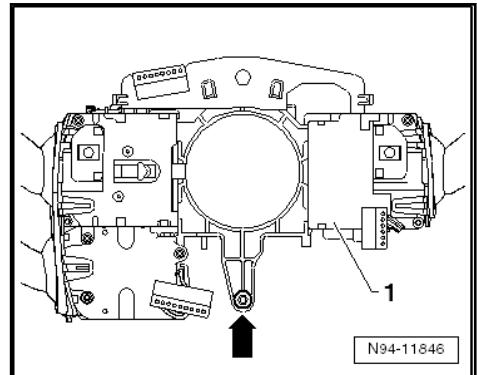


- Remove the screw -arrow- and remove the complete Steering Column Combination Switch -E595-1- from the steering column switch base carrier.



## Installing

- Slide the Steering Column Combination Switch -E595- into the slide on the steering column switch base carrier.
- Install the screw -arrow-.



N94-11846

- Connecting the Battery -A-. Refer to [C5.1.2 connecting](#), page 17 .

Install in reverse order of removal.

### 5.13.6 Steering Column Switch Base Carrier, Valeo

#### Special tools and workshop equipment required

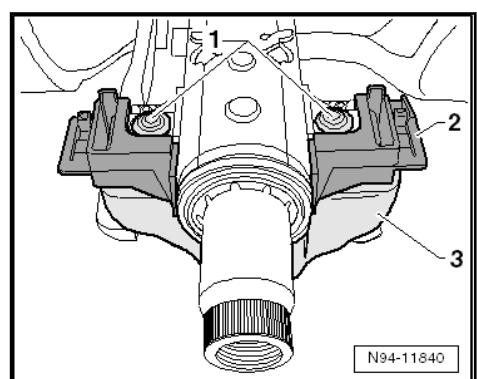
- ◆ Angled hand drill
- ◆ Torque Wrench -V.A.G 1410-



#### Caution

*The removal and installation of individual steering column switch components must be done in a specified sequence. Refer to [C5.13.1 Column Switch Module Components, Sequence](#), page 277 .*

The shear bolts -1- on the Electronic Steering Column Lock Control Module -J764- must be drilled out in order to remove the steering column switch mount -2-. New shear bolts will be needed for installation later. Refer to the Parts Catalog.



N94-11840



#### Caution

- ◆ Before drilling out shear bolts, always make sure all components secured to steering column switch base carrier are removed beforehand.
- ◆ By drilling out, drill shavings can reach the neighboring components, which can lead to damage and malfunctions!
- ◆ When removing the steering column switch components, observe the specified sequence ⇒ [C5.13.1 Column Switch Module Components, Sequence](#), page 277 .



#### Caution

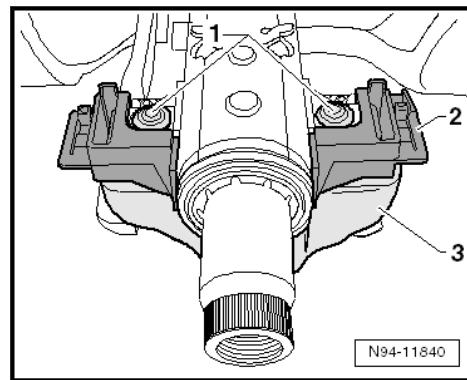
Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ [D5.1 Disconnecting and Connecting](#), page 16 .

#### Removing

- Disconnecting the Battery -A-. Refer to ⇒ [D5.1.1 Disconnecting](#), page 16 .
- Remove all the components attached to the steering column switch base carrier in the sequence given. Refer to ⇒ [C5.13.1 Column Switch Module Components, Sequence](#), page 277 .

The steering column switch base carrier can be removed once all the components attached to it are removed.

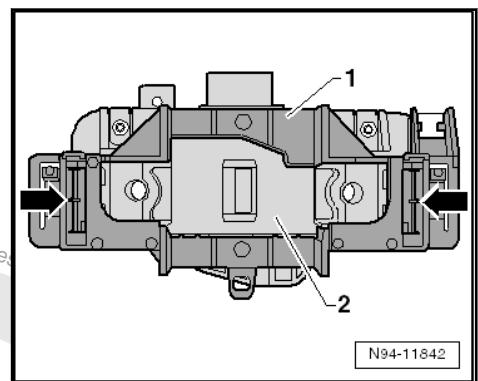
- Drill out the shear bolts -1- on the Electronic Steering Column Lock Control Module -J764- -3-.



#### Note

Bolts M8 -1-, core hole diameter 6.8 mm.

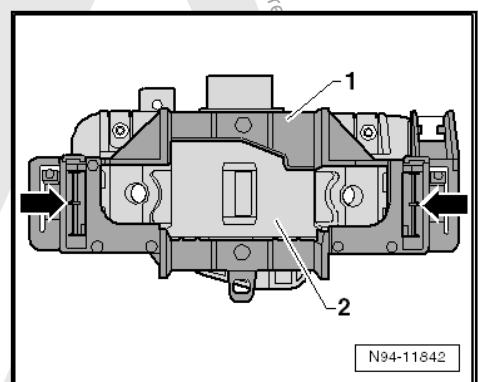
- Disconnect the connector on the back of the Electronic Steering Column Lock Control Module -J764- -3- and then remove the control module together with the steering column switch base carrier -2- from the steering column.
- Open the tabs -arrows- on the steering column switch base carrier and remove the steering column switch base carrier -1- from the Electronic Steering Column Lock Control Module -J764- -2-.



N94-11842

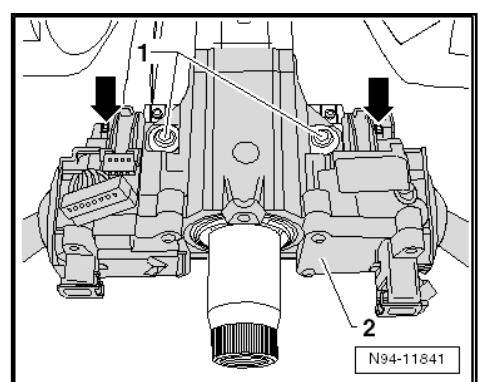
### Installing

- Install the steering column switch base carrier -1- on the Electronic Steering Column Lock Control Module -J764- -2-.



N94-11842

- Slide the Steering Column Combination Switch -E595- onto the steering column switch base carrier until it latches.
- Slide the pre-assembled unit from the Electronic Steering Column Lock Control Module -J764-, the steering column switch base carrier and the Steering Column Combination Switch -E595- all the way onto the steering column and line them up with the threaded holes.
- Secure the Electronic Steering Column Lock Control Module -J764- -1- to the steering column with new shear bolts.



N94-11841

- Tighten the shear bolts -1- until the bolt heads shear off.
- Connecting the Battery -A-. Refer to [C5.1.2 connecting](#), page 17 .

Install in reverse order of removal.



Replace the Electronic Steering Column Lock Control Module -J764-, refer to [⇒ E5.13.8 Electronic Steering Column Lock Control Module J764, Replacing](#), page 290 .

### 5.13.7 Steering Column Switch Base Carrier, Kostal

Special tools and workshop equipment required

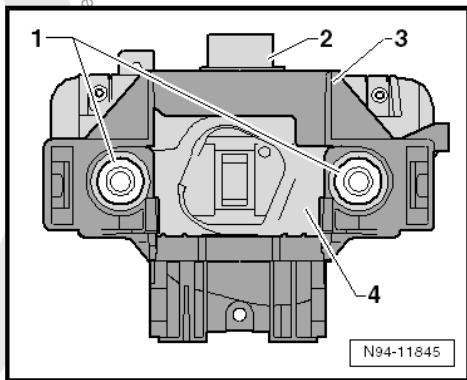
- ◆ Angled hand drill
- ◆ Torque Wrench -V.A.G 1410-



#### Caution

*The removal and installation of individual steering column switch components must be done in a specified sequence. Refer to [⇒ C5.13.1 Column Switch Module Components, Sequence](#), page 277 .*

The shear bolts -1- on the Electronic Steering Column Lock Control Module -J764- -4- must be drilled out in order to remove the steering column switch base -3-. New shear bolts will be needed later for installing. Refer to the Parts Catalog.



#### Caution

- ◆ Before drilling out shear bolts, always make sure all components secured to steering column switch base carrier are removed beforehand.
- ◆ By drilling out, drill shavings can reach the neighboring components, which can lead to damage and malfunctions!
- ◆ When removing the steering column switch components, observe the specified sequence [⇒ C5.13.1 Column Switch Module Components, Sequence](#), page 277 .



#### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [⇒ D5.1 Disconnecting and Connecting](#), page 16 .*

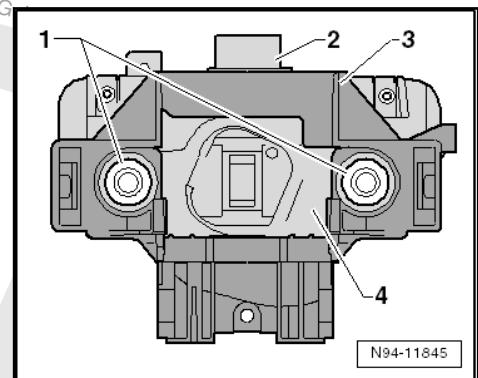


## Removing

- Disconnecting the Battery -A-. Refer to [D5.1.1 disconnecting](#), page 16 .
- Remove all the components attached to the steering column switch base carrier in the sequence given. Refer to [C5.13.1 column Switch Module Components, Sequence](#), page 277 .

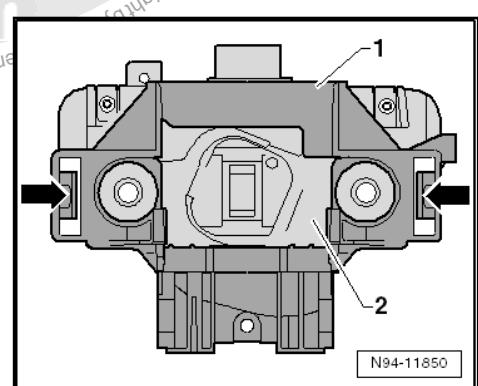
The steering column switch base carrier can be removed one all the components attached to it are removed.

- Drill out the shear bolts -1- on the Electronic Steering Column Lock Control Module -J764- -4-.



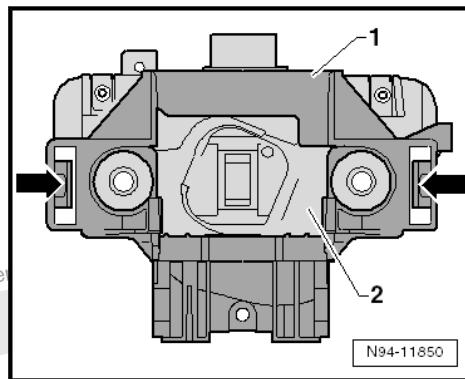
**Note**  
*Bolts M8 -1-, core hole diameter 6.8 mm.*

- Disconnect the connector -2- on the back of the Electronic Steering Column Lock Control Module -J764- -4- and then remove the control module with the steering column switch base carrier -3- from the steering column.
- Open the tabs -arrows- on the steering column switch base carrier and remove the steering column switch base carrier -1- from the Electronic Steering Column Lock Control Module -J764- -2-.

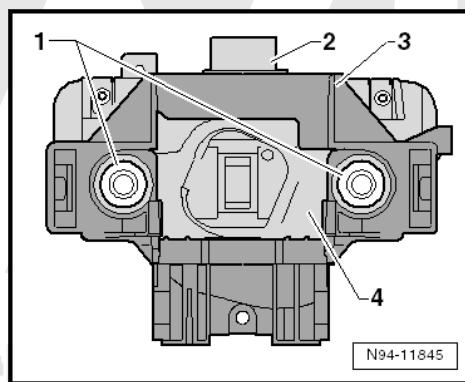


## Installing

- Install the steering column switch base carrier -1- on the Electronic Steering Column Lock Control Module -J764- -2-.



- Slide the Steering Column Combination Switch -E595- onto the steering column switch base carrier and install the lower screw.
- Slide the pre-assembled unit from the Electronic Steering Column Lock Control Module -J764-, the steering column switch base carrier and the Steering Column Combination Switch -E595- all the way onto the steering column and line them up with the threaded holes.
- Attach the Electronic Steering Column Lock Control Module -J764- -4- to the steering column with new shear bolts -1-.



- Tighten the shear bolts -1- until the bolt heads shear off.
- Connecting the Battery -A-. Refer to [⇒ C5.1.2 connecting](#), [page 17](#).

Install in reverse order of removal.

Replace the Electronic Steering Column Lock Control Module -J764-, refer to [⇒ E5.13.8 Electronic Steering Column Lock Control Module J764, Replacing](#), [page 290](#).

### 5.13.8 Electronic Steering Column Lock Control Module -J764-, Replacing

If the vehicle has KESSY, the steering column does not lock mechanically via the lock cylinder, but rather it locks electrically (Electronic Steering Column Lock Control Module -J764-).

The procedure for "replacing the Electronic Steering Column Lock Control Module" includes the following steps:

- ◆ If a new Electronic Steering Column Lock Control Module -J764- is being installed, then it is necessary to code the Electronic Steering Column Lock Control Module -J764-.
- ◆ Then the Electronic Steering Column Lock Control Module -J764- must be adapted.



### Note

The procedure to "replace the Electronic Steering Column Lock Control Module" can only be performed with the Vehicle Diagnostic Tester in the "guided fault finding" function.

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 2B - Electronics steering column adjustment
  - ◆ Functions
  - ◆ Replace the Electronic Steering Column Lock Control Module

### 5.13.9 Electronic Steering Column Lock Control Module -J764-

If the vehicle has KESSY, the steering column does not lock mechanically via the lock cylinder, but rather it locks electrically (Electronic Steering Column Lock Control Module -J764-).

The "replacing the Electronic Steering Column Lock Control Module" procedure must be performed each time before removing the Electronic Steering Column Lock Control Module -J764- to read the stored data in the Electronic Steering Column Lock Control Module -J764-, refer to [⇒ E5.13.8 Electronic Steering Column Lock Control Module J764, Replacing](#), page 290 .

The Electronic Steering Column Lock Control Module -J764- and the steering column switch mount are removed and installed together.



#### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [⇒ D5.1 Disconnecting and Connecting](#), page 16 .*

### Removing

- Disconnecting the Battery -A-. Refer to [⇒ D5.1.1 Disconnecting](#), page 16 .
- Remove the steering column switch base carrier. Refer to [⇒ C5.13.1 Column Switch Module, KESSY](#), page 277 .



## 5.14 Ignition Switch and Lock Cylinder, through 05/2010

- ⇒ [L5.14.1 lock Housing", page 292](#)
- ⇒ [C5.14.2 cylinder", page 292](#)
- ⇒ [I5.14.3 gnition SwitchD ", page 295](#)
- ⇒ [I5.14.4 gnition Switch Key Lock SolenoidN376 ", page 296](#)

### 5.14.1 Steering Lock Housing



#### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ D5.1 Disconnecting and Connecting", page 16 .*

*The steering lock could get damaged.*

*If the steering lock is operated without lock cylinder, it will lock up and then it will have to be replaced.*

*Steering lock must not be operated without lock cylinder.*

It is necessary to remove the steering column switch base carrier first if the steering lock housing is going to be removed.

#### Removing

- Disconnecting the Battery -A-. Refer to ⇒ [D5.1.1 Disconnecting", page 16](#).
- Remove the steering column switch base carrier. Refer to ⇒ [C5.11.6 Column Switch Base Carrier", page 261](#) .

### 5.14.2 Lock Cylinder



#### WARNING

- ◆ *Risk of airbag deployment.*
- ◆ *The airbag unit could deploy if mishandled.*
- ◆ *Follow the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 69; General Information.*



#### Caution

- ◆ *Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ D5.1 Disconnecting and Connecting", page 16 .*
- ◆ *The steering lock could get damaged.*
- ◆ *If the steering lock is operated without lock cylinder, it will lock up and then it will have to be replaced.*
- ◆ *Steering lock must not be operated without lock cylinder.*

#### Removing

- Disconnecting the Battery -A-. Refer to ⇒ [D5.1.1 Disconnecting", page 16](#) .

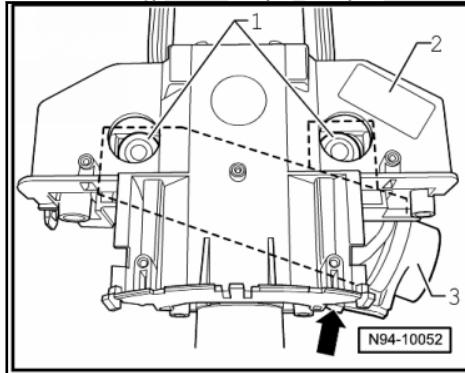


- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48; Removal and Installation.
- Remove the trim from the steering column. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Remove the Steering Column Electronics Control Module -J527-. Refer to ⇒ [C5.11.1 Column Switch Module, through 05/2010](#), page 255 .
- Remove the Airbag Spiral Spring/Return Spring With Slip Ring -F138-. Refer to ⇒ [A5.11.3 Airbag Spiral Spring/Return Spring with Slip Ring F138](#) , page 258 .
- Remove the steering angle sensor -G85-. Refer to ⇒ [263](#) .

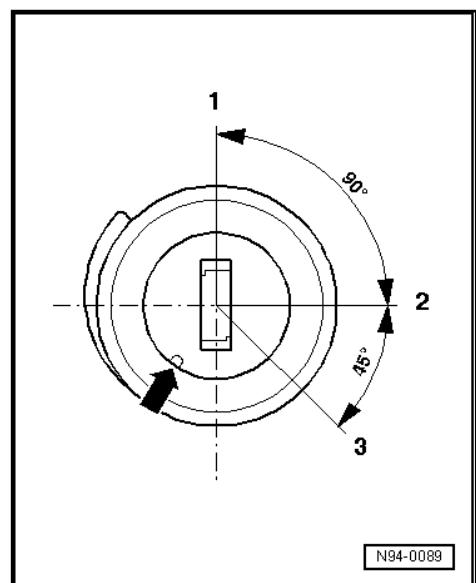


#### Note

- ◆ *Switches must not be removed when removing lock cylinder.*
- ◆ *The Anti-Theft Immobilizer Reading Coil -D2- is attached to the lock cylinder and cannot be replaced separately.*



- Disconnect the connector -arrow- from the Anti-Theft Immobilizer Reader Coil -D2- -3-.
- Insert the ignition key into the lock cylinder and turn the key to the "Run" position.



Key positions of lock cylinder:

1 - "Off" Position



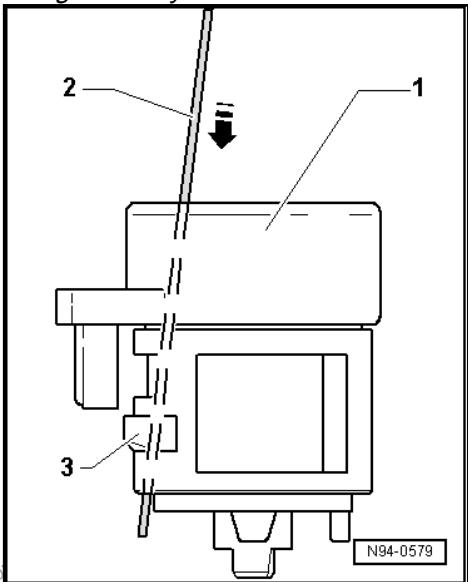
2 - "Run" Position

3 - "Start" Position



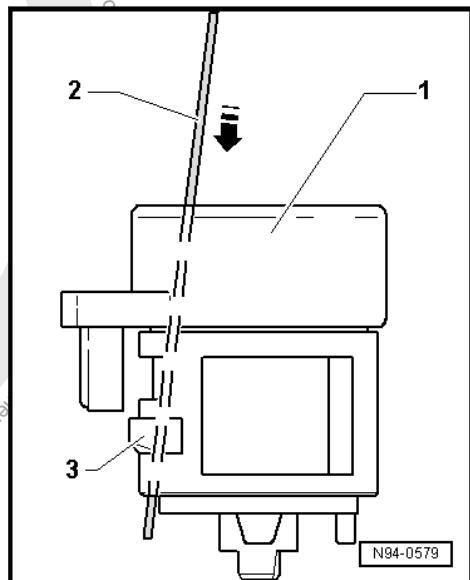
### Note

For reasons of clarity, the following illustration depicts lock cylinder as removed and without ignition key.



- Insert steel wire (1.2 mm diameter) into hole next to ignition key -arrow-.
- Release the locking lever -3- for the lock cylinder -1- with the steel wire -2- -arrow-.
- Remove the lock cylinder -1- from the steering lock housing.

### Installing





**Note**

To improve clarity, the ignition key is not shown in the following illustration.

- Insert the ignition key into the lock cylinder -1- and turn to the "Drive" position.
- Use the steel wire -2- to release the securing lever -3- of the lock cylinder -1- -arrow-.
- Insert the lock cylinder -1- into the steering lock housing.

The Anti-Theft Immobilizer Reading Coil -D2- connection must be inserted into the guide on the steering lock housing.

- Remove the steel wire -2- from the lock cylinder -1- and then make sure the lock cylinder fit securely in the steering lock housing.
- Connect the connector to the Anti-Theft Immobilizer Reading Coil -D2-.
- Connecting the Battery -A-. Refer to [⇒ C5.1.2 onnecting”, page 17](#).

Further installation is done in reverse order of removal.

### 5.14.3 Ignition Switch -D-

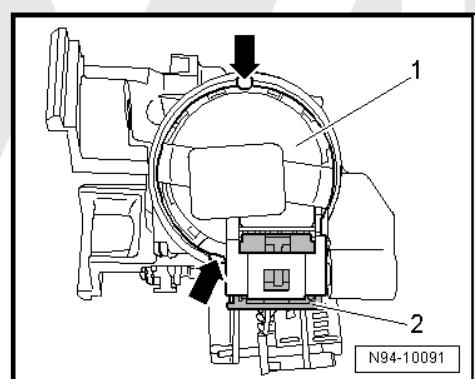


**Caution**

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [⇒ D5.1 isconnecting and Connecting”, page 16](#).*

#### Removing

- Disconnecting the Battery -A-. Refer to [⇒ D5.1.1 isconnecting”, page 16](#).
- Remove the trim from the steering column. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Disconnect the connector -2- from the Ignition Switch -D- -1-.

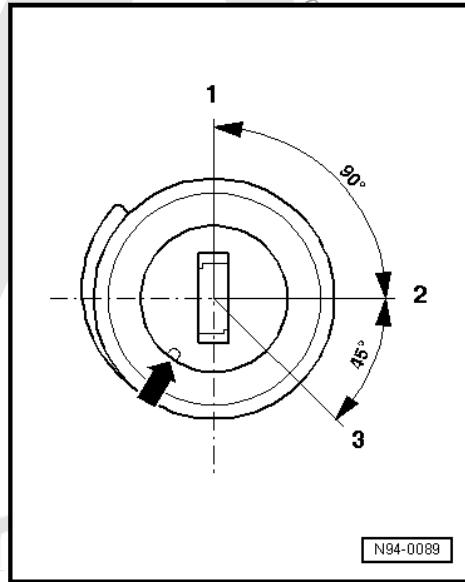


- Unlock the Ignition Switch -D- with a small screwdriver -arrows-.
- Remove the Ignition Switch -D- -1- from the steering lock housing.



## Installing

- Install the Ignition Switch -D- in the steering lock housing until it clicks into place.
- Insert ignition key into lock cylinder and turn into position "Drive".



The key must be in the "Run" position.

Key positions of lock cylinder:

- 1 - "Off" Position
- 2 - "Run" Position
- 3 - "Start" Position

- Install the components in reverse order of removal.
- Connecting the Battery -A-. Refer to [C5.1.2 connecting](#), [page 17](#).

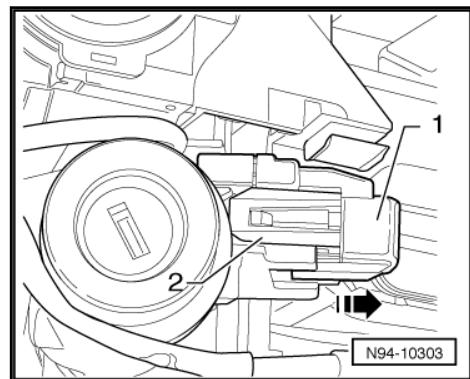
### 5.14.4 Ignition Switch Key Lock Solenoid - N376-

The Ignition Switch Key Lock Solenoid -N376- must be mounted next to the Ignition Switch.

To remove ignition key in vehicles with automatic transmission, always shift selector lever into position "P" and then switch off ignition. Otherwise, Ignition Switch Key Lock Solenoid -N376- prevents the key from being removed.

## Removing

- Remove the Steering Column Electronics Control Module -J527-. Refer to [C5.12 column Switch Module, from 06/2010](#), [page 264](#).
- Release the retainer -2- with a suitable screwdriver.



- Pull Ignition Switch Key Lock Solenoid -N376- -1- in the direction of the -arrow- out of its mount. The connector will disconnect at the same time.

### Installing

Install in reverse order of removal. Note the following:

- Connecting the Battery -A-. Refer to [⇒ C5.1.2 onnecting”, page 17](#).
- After attaching the battery -A- for activating the Ignition Switch Key Lock Solenoid -N376-, perform the output diagnostic test mode for the Steering Column Electronics Control Module -J527-. Refer to [⇒ , page 258](#).

## 5.15 Ignition Switch and Lock Cylinder, from 06/2010

[⇒ L5.15.1 ock Housing”, page 297](#)

[⇒ C5.15.2 ylinder”, page 298](#)

[⇒ I5.15.3 gnition SwitchD ”, page 301](#)

[⇒ I5.15.4 gnition/Starter SwitchD, KESSY”, page 302](#)

[⇒ I5.15.5 gnition Switch Key Lock SolenoidN376 ”, page 303](#)

### 5.15.1 Steering Lock Housing



#### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [⇒ D5.1 isconnecting and Connecting”, page 16](#).*

To remove the steering lock housing, remove the steering column switch base carrier first.



#### Caution

- ◆ *The steering lock could get damaged.*
- ◆ *If the steering lock is operated without lock cylinder, it will lock up and then it will have to be replaced.*
- ◆ *Steering lock must not be operated without lock cylinder.*



## Removing

- Disconnecting the Battery -A-. Refer to ⇒ [D5.1.1 disconnecting](#), page 16 .
- Remove the steering column switch base carrier. Refer to ⇒ [C5.13 column Switch Module, KESSY](#), page 277 .

## 5.15.2 Lock Cylinder



### Caution

- ◆ Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ [D5.1 disconnecting and Connecting](#), page 16 .
- ◆ The steering lock could get damaged.
- ◆ If the steering lock is operated without lock cylinder, it will lock up and then it will have to be replaced.
- ◆ Steering lock must not be operated without lock cylinder.

## Removing

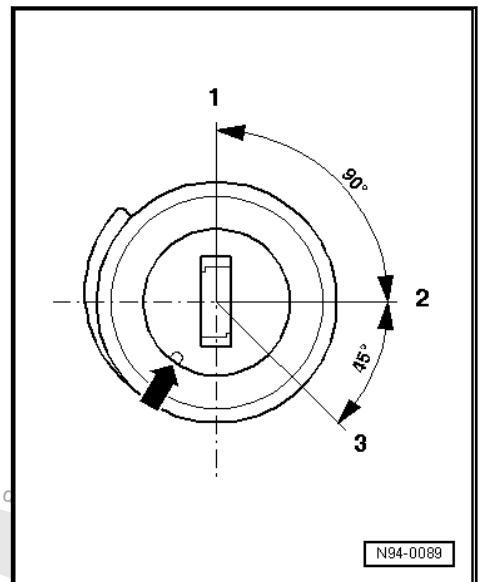
- Disconnecting the Battery -A-. Refer to ⇒ [D5.1.1 disconnecting](#), page 16 .
- Remove the trim from the steering column. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.



### Note

- ◆ The Anti-Theft Immobilizer Reading Coil -D2- is attached to the lock cylinder and cannot be replaced separately.
- ◆ To improve clarity, the ignition key is not shown in the following illustrations.
- ◆ The hole can be located opposite 180° as shown in the illustration. This does not affect removing and installing.
- Insert the ignition key into the lock cylinder and turn the key to the "Run" position.

## Lock cylinder key positions

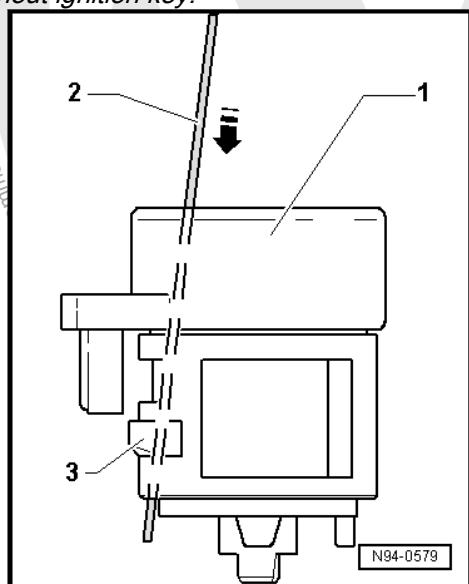


- 1 - "Off" Position
- 2 - "Run" Position
- 3 - "Start" Position

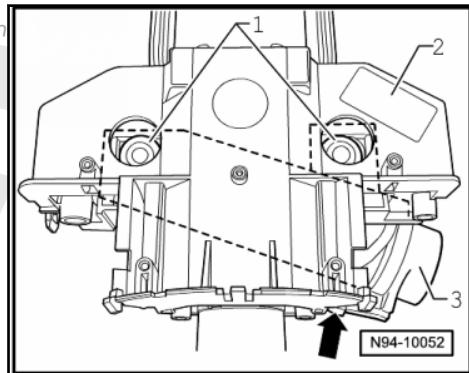


#### Note

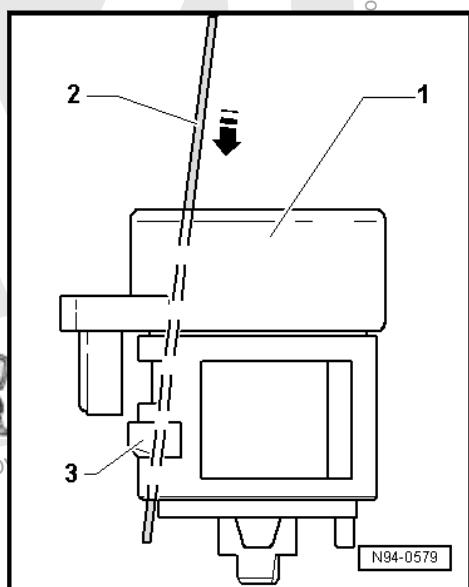
*For reasons of clarity, the following illustration depicts lock cylinder as removed and without ignition key.*



- Insert steel wire (1.2 mm diameter) into hole next to ignition key -arrow-.
- Release the lever -3- on the lock cylinder -1- with steel wire -2- -arrow-.
- Remove the lock cylinder -1- from the steering lock housing.
- Disconnect the connector -arrow- from the anti-theft immobilizer reader coil -D2-.



## Installing



### Note

To improve clarity, the ignition key is not shown in the following illustration.

- Insert the ignition key into the lock cylinder -1- and turn the key to the "Run" position.
- Unlock the lever -3- with steel wire -2- -arrow-.
- Insert the lock cylinder -1- into the steering lock housing.

The Anti-Theft Immobilizer Reading Coil -D2- connection must be inserted into the guide on the steering lock housing.

- Remove the steel wire -2- from the lock cylinder -1- and then make sure the lock cylinder fit securely in the steering lock housing.
- Connect the connector to the Anti-Theft Immobilizer Reading Coil -D2-.
- Connecting the Battery -A-. Refer to [⇒ C5.1.2 connecting](#), [page 17](#).

Further installation is done in reverse order of removal.



### 5.15.3 Ignition Switch -D-



#### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ D5.1 Disconnecting and Connecting", page 16 .*

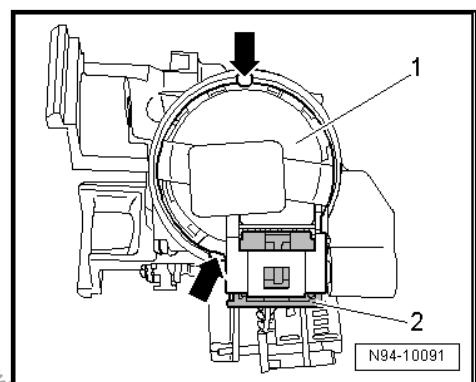


#### WARNING

- ◆ Risk of airbag deployment.
- ◆ The airbag unit could deploy if mishandled.
- ◆ Follow the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 69; General Information.

#### Removing

- Disconnecting the Battery -A-. Refer to ⇒ D5.1.1 Disconnecting", page 16 .
- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48; Removal and Installation.
- Remove the trim from the steering column. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Unlock the Ignition Switch -D- with a small screwdriver -arrows-.

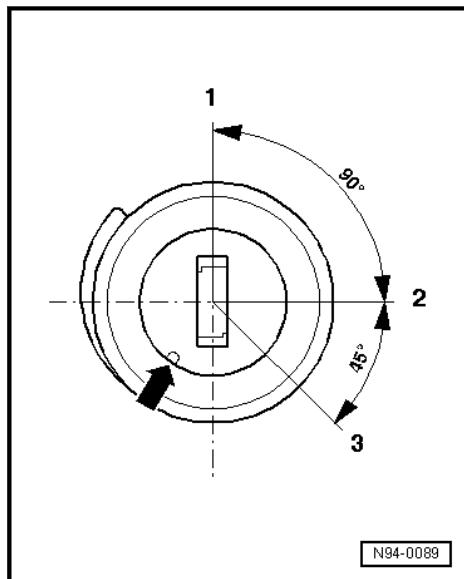


- Remove the Ignition Switch -D- -1- from the steering lock housing.

#### Installing

- Install the Ignition Switch -D- in the steering lock housing until it clicks into place.
- Insert the ignition key into the lock cylinder and turn the key to the "Run" position.

#### Lock cylinder key positions



- 1 - "Off" Position
- 2 - "Run" Position
- 3 - "Start" Position
- Connecting the Battery -A-. Refer to [C5.1.2 connecting](#), [page 17](#).

Further installation is done in reverse order of removal.

#### Ignition Switch -D-, Checking

- Connect the Vehicle Diagnostic Tester.
- Select [Guided Fault Finding](#).
- Use the [GO TO](#) button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Electrical Components
  - ◆ Ignition/starter switch

#### 5.15.4 Ignition/Starter Switch -D-, KESSY

Instead of a customary Ignition Switch -D- in the steering column, a vehicle with KESSY has a Start System Button -E378- inside the center console.

Start System Button -E378-, Removal and Installation, refer to [i4.7.1 n Center Console Storage Compartment](#), [page 393](#).



## 5.15.5 Ignition Switch Key Lock Solenoid - N376-



### Caution

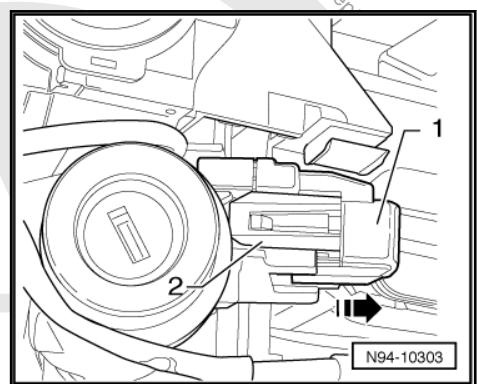
*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [D5.1 Disconnecting and Connecting](#), page 16.*

The Ignition Switch Key Lock Solenoid -N376- is installed next to the Ignition Switch -D-.

To remove ignition key in vehicles with automatic transmission and DSG, always shift selector lever into position "P" and then switch off ignition. Otherwise, Ignition Switch Key Lock Solenoid -N376- prevents the key from being removed.

### Removing

- Disconnecting the Battery -A-. Refer to [D5.1.1 Disconnecting](#), page 16 .
- Remove the trim from the steering column. Refer to [Body Interior; Rep. Gr. 68; Removal and Installation](#).
- Open the tab -2- with a screwdriver.



- Pull Ignition Switch Key Lock Solenoid -N376- -1- in the direction of the -arrow- out of its mount.

The connector will disconnect at the same time.

### Installing

Install in reverse order of removal. Note the following:

- Connecting the Battery -A-. Refer to [C5.1.2 Connecting](#), page 17 .
- After attaching the Battery -A- for activating the Ignition Switch Key Lock Solenoid -N376-, perform the output diagnostic test mode for the Steering Column Electronics Control Module -J527-. Refer to [page 258](#) .



## 5.16 Access/Start Authorization

- ⇒ [A5.16.1 Access/Start Authorization Control Module J518](#) , page 304
- ⇒ [O5.16.2 Outside Door Handle](#) , page 305
- ⇒ [O5.16.3 Inside Door Handle](#) , page 306
- ⇒ [A5.16.4 Access/Start Authorization Antenna In Rear Bumper R136](#) , page 306
- ⇒ [A5.16.5 Access/Start Authorization Antenna in Luggage Compartment R137](#) , page 307
- ⇒ [A5.16.6 Access/Start System Antenna 1 In Vehicle Interior R138](#) , page 308
- ⇒ [A5.16.7 Access/Start System Antenna 2 In Vehicle Interior R139](#) , page 309
- ⇒ [S5.16.8 Start System Button E378](#) , page 309

### 5.16.1 Access/Start Authorization Control Module -J518-

The Access/Start Authorization Control Module -J518- controls all access/start functions.

The Access/Start Authorization Control Module -J518- is located in the footwell on the driver side above the brake pedal.

The "access/start authorization system" must be coded after the Access/Start Authorization Control Module -J518- has been replaced. Refer to ⇒ , page 305 .

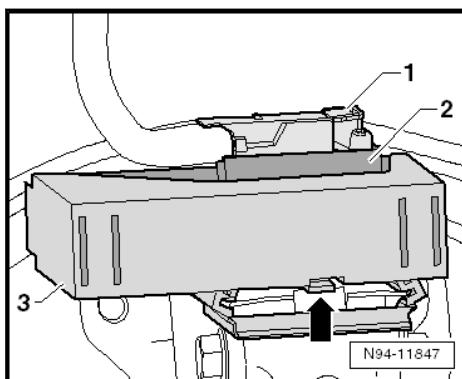


#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

#### Removing

- Remove the footwell vent on the driver side. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 80; Removal and Installation.

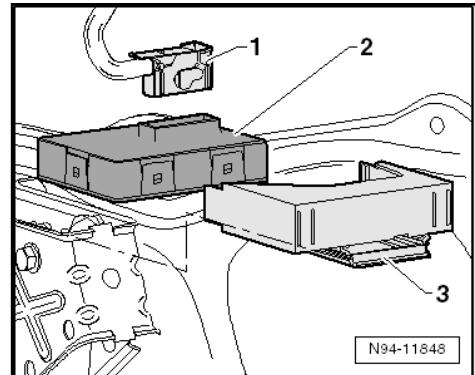


- Open the retainers -arrow- and remove the Access/Start Authorization Control Module -J518- -2- together with the mount -3- from the brake pedal bracket. Pay attention to the wires still connected.
- Disconnect the connector -1- and remove the Access/Start Authorization Control Module -J518- -2- from its mount -3-.



## Installing

Install in reverse order of removal. Note the following:



- Install the Access/Start Authorization Control Module -J518-  
-2- in its mount -3-.
- Slide the mount -3-, together with the Access/Start Authorization Control Module -J518-, onto the guides on the brake pedal until it latches secure.
- Connect the connector -1-.

The “access/start authorization system” must be coded after the Access/Start Authorization Control Module -J518- has been replaced. Refer to [, page 305](#).

### Access/Start Authorization Control Module -J518-, Coding

The “access/start authorization system” must be coded after the Access/Start Authorization Control Module -J518- has been replaced.

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 05 - Access/start authorization
  - ◆ Access/start authorization functions
  - ◆ Control module, coding

## 5.16.2 Passenger Outside Door Handle

The front passenger exterior door handle consists of:

- ◆ Front Passenger Exterior Door Handle Touch Sensor -G416-
- ◆ Passenger Side Access/Start Authorization Antenna -R135-

The complete outer door handle must always be replaced if malfunctioning.

No coding, basic setting or adaptation is necessary when outside door handle is replaced. Erase the entry in the DTC memory. Connect the Vehicle Diagnostic Tester.



**Caution**

- ◆ *Turn off the ignition and all electrical equipment.*
- ◆ *Remove the key.*

**Removing**

- Remove the right front exterior door handle. Refer to ⇒ Body Exterior; Rep. Gr. 57; Front Door; Door Handle, Removal and Installation.

**Installing**

Install in reverse order of removal.

### 5.16.3 Driver Outside Door Handle

The driver exterior door handle consists of:

- ◆ Driver Exterior Door Handle Touch Sensor -G415-
- ◆ Driver Side Rear Access/Start Authorization Antenna -R134-

The complete outer door handle must always be replaced if malfunctioning.

No coding, basic setting or adaptation is necessary when outside door handle is replaced. Erase the entry in the DTC memory. Connect the Vehicle Diagnostic Tester.



**Caution**

- ◆ *Turn off the ignition and all electrical equipment.*
- ◆ *Remove the key.*

**Removing**

- Remove the left front exterior door handle. Refer to ⇒ Body Exterior; Rep. Gr. 57; Front Door; Door Handle, Removal and Installation.

**Installing**

Install in reverse order of removal.

### 5.16.4 Access/Start Authorization Antenna In Rear Bumper -R136-

Component location of Access/Start Authorization Antenna in Rear Bumper -R136- is behind the rear bumper cover.

No coding, basic setting or adaptation is necessary if Access/Start Authorization Antenna (in rear bumper) -R136- is replaced. Erase the entry in the DTC memory. Connect the Vehicle Diagnostic Tester.



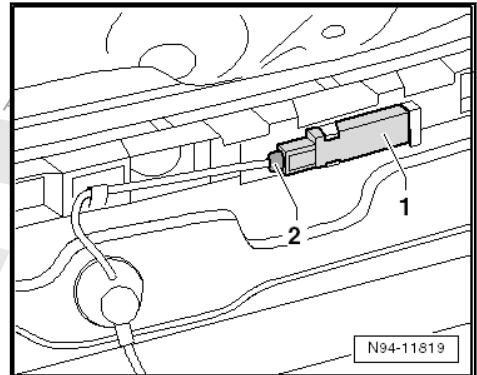
**Caution**

- ◆ *Turn off the ignition and all electrical equipment.*
- ◆ *Remove the key.*



## Removing

- Remove the rear bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Rear Bumper Cover; Rear Bumper Cover.
- Release the Access/Start Authorization Antenna in Rear Bumper -R136- -1- from lower part of bumper, being careful of connected wires.



- Disengage the connector -2- and disconnect. Remove the Access/Start Authorization Antenna in Rear Bumper -R136- -1-.

## Installing

Install in reverse order of removal.

### 5.16.5 Access/Start Authorization Antenna in Luggage Compartment -R137-

Component location of Luggage Compartment Access/Start Authorization Antenna -R137- is in luggage compartment, at center in front of spare wheel well.

No coding, basic setting or adaptation is necessary if Luggage Compartment Access/Start Authorization Antenna -R137- is replaced. Erase the entry in the DTC memory. Connect the Vehicle Diagnostic Tester.

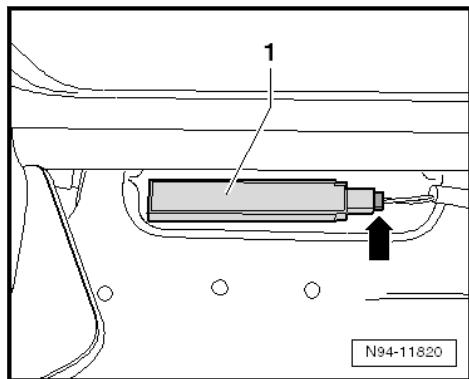


#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

## Removing

- Remove the floor covering from the luggage compartment.
- Remove the Access/Start Authorization Antenna In Luggage Compartment -R137- -1- vertically. Pay attention to the wires still connected.



- Disconnect the connector -arrow-. Remove the Access/Start Authorization Antenna in Luggage Compartment -R137- -1- from the vehicle.

#### Installing

Install in reverse order of removal.

### 5.16.6 Access/Start System Antenna 1 In Vehicle Interior -R138-

The Access/Start System Antenna 1 In Vehicle Interior -R138- is installed under the front center console, in front of the selector lever.

No coding, basic setting or adaptation is necessary if Access/Start System Antenna 1 In Vehicle Interior -R138- is replaced. Erase the entry in the DTC memory. Connect the Vehicle Diagnostic Tester.

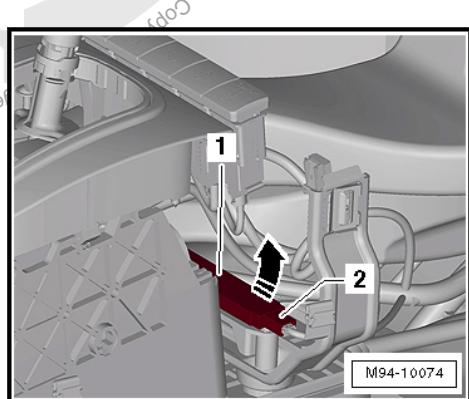


#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

#### Removing

- Remove the button strip inside the center console storage compartment. Refer to [i4.7.1 n Center Console Storage Compartment](#), page 393 .
- Remove the Access/Start Authorization Antenna 1 in Vehicle Interior -R138- -1- -arrow-. Pay attention to the wires still connected.



- Disengage the connector -2- and disconnect. Remove the Access/Start Authorization Antenna 1 in Vehicle Interior - R138- -1-.



## Installing

Install in reverse order of removal.



### Note

*It is not possible to remove the bracket for the Access/Start System Antenna 1 In Vehicle Interior -R138- in the center console without breaking it. If the antenna bracket must be removed, then install a new bracket so that there will not be any rattling noises and the KESSY system will continue to work correctly.*

## 5.16.7 Access/Start System Antenna 2 In Vehicle Interior -R139-

The Access/Start System Antenna 2 In Vehicle Interior -R139- is located underneath the center rear seat bench.

No coding, basic setting or adaptation is necessary if Access/Start System Antenna 2 In Vehicle Interior -R139- is replaced. Erase the entry in the DTC memory. Connect the Vehicle Diagnostic Tester.

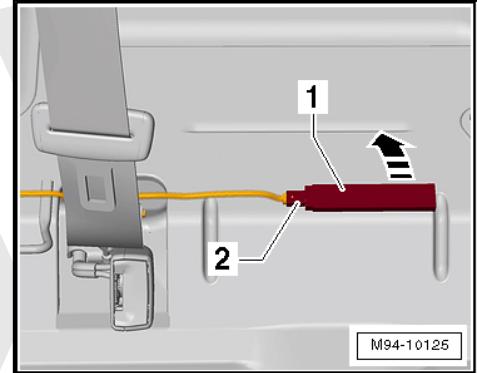


### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

## Removing

- Remove the rear seat bench. Refer to ⇒ Body Interior; Rep. Gr. 72; Removal and Installation.
- Remove the Access/Start System Antenna 2 In Vehicle Interior -R139- -2- -arrow-. Pay attention to the wires still connected.



- Disconnect the connector -2- and remove the Access/Start System Antenna 2 In Vehicle Interior -R139- -2- from the vehicle.

## Installing

Install in reverse order of removal.

## 5.16.8 Start System Button -E378-

### Special tools and workshop equipment required

- ◆ Trim Removal Wedge -3409-



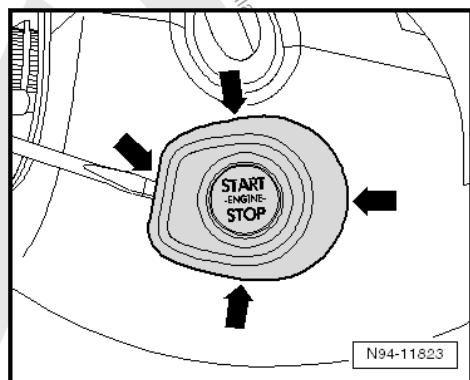
Vehicles with KESSY have a Start System Button -E378- instead of a Ignition Switch -D-. The button works as an ignition lock but without a key.



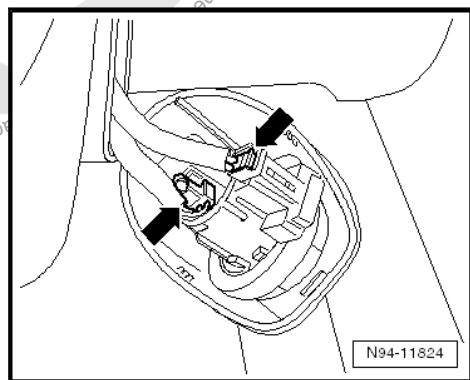
#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

#### Removing



- Pry the cap off the Start System Button -E378- -arrows- using Trim Removal Wedge -3409- or with a screwdriver.
- Disconnect the connectors -arrows- and remove the Start System Button -E378-.



#### Installing

Installation is performed in the reverse order of removal, noting the following:



#### Note

When installing the Start System Button -E378- cap pay attention that the cap fit securely with the lower steering column trim.



## 5.17 Parking Aid

- ⇒ [P5.17.1 arking Aid Control ModuleJ446, Sedan through 11/2008", page 311](#)
- ⇒ [P5.17.2 arking Aid Control ModuleJ446, Wagon through 11/2008", page 312](#)
- ⇒ [P5.17.3 arking Aid Control ModuleJ446 ", page 313](#)
- ⇒ [t5.17.4 he Optical Illustration", page 314](#)
- ⇒ [P5.17.5 arking Aid Sensor", page 315](#)
- ⇒ [P5.17.6 arking Aid Sensor", page 317](#)
- ⇒ [M5.17.7 ount in Bumper Cover, Repairing", page 320](#)
- ⇒ [A5.17.8 id Sensor, Painting", page 323](#)
- ⇒ [R5.17.9 ear Parking Aid Warning BuzzerH15, Sedan", page 324](#)
- ⇒ [R5.17.10 ear Parking Aid Warning BuzzerH15, Wagon", page 324](#)
- ⇒ [R5.17.11 ear Parking Aid Warning BuzzerH15, Adjusting Volume", page 325](#)
- ⇒ [R5.17.12 ear Parking Aid Warning BuzzerH15, Adjusting Tone", page 325](#)
- ⇒ [F5.17.13 ront Parking Aid Warning BuzzerH22 ", page 326](#)
- ⇒ [F5.17.14 ront Parking Aid Warning BuzzerH22, Adjusting Volume", page 326](#)
- ⇒ [F5.17.15 ront Parking Aid Warning BuzzerH22, Adjusting Tone", page 327](#)

### 5.17.1 4-Channel Parking Aid Control Module -J446-, Sedan through 11/2008

The Parking Aid Control Module -J446- is located behind the right luggage compartment side trim.

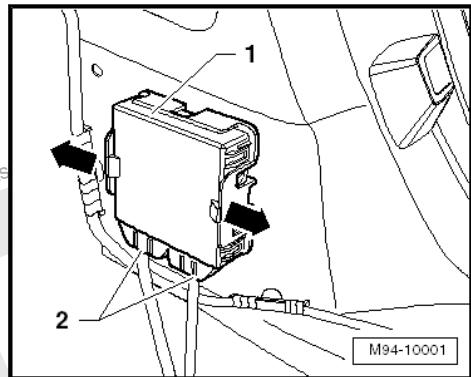


**Caution**

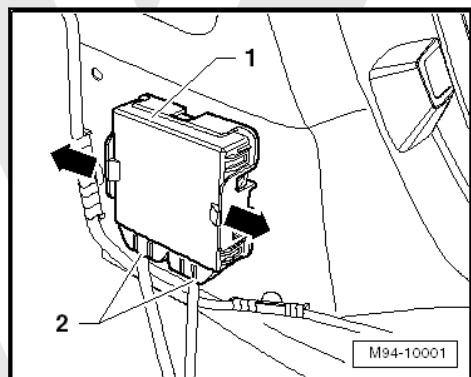
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

#### Removing

- Remove trim in the right of the luggage compartment. Refer to ⇒ Body Interior; Rep. Gr. 70; Removal and Installation.
- Disconnect the connectors -2- from the Parking Aid Control Module -J446- -1-.



- Push the tabs -arrows- to the outside and remove the Parking Aid Control Module -J446- -1-.



## Installing

Install in reverse order of removal.

### 5.17.2 4-Channel Parking Aid Control Module -J446-, Wagon through 11/2008

The Parking Aid Control Module -J446- is located behind the right luggage compartment side trim.

- ◆ Code the Parking Aid Control Module -J446-. Refer to [page 314](#).

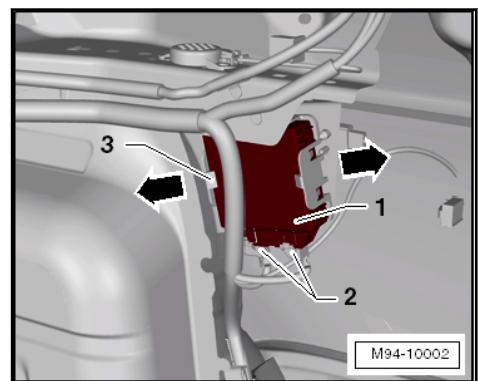


#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

## Removing

- Remove trim in the right of the luggage compartment. Refer to ⇒ Body Interior; Rep. Gr. 70; Removal and Installation.
- Disconnect the connectors -2- from the Parking Aid Control Module -J446- -1-.



- Push the tabs -arrows- on the bracket -3- toward the outside and remove the Parking Aid Control Module -J446- -1- from the bracket -3-.

### Installing

Install in reverse order of removal.

### 5.17.3 Parking Aid Control Module -J446-

The Parking Aid Control Module -J446- is located behind the instrument panel on the driver side above the relay panel.

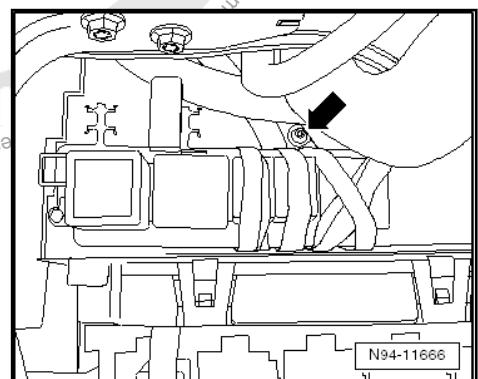


#### Caution

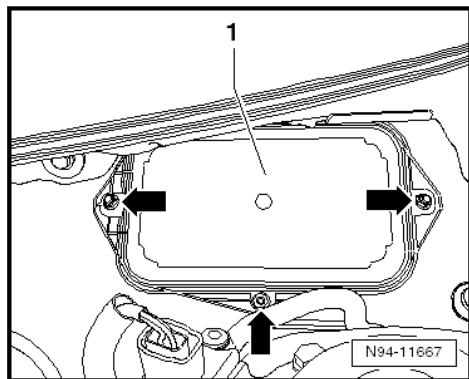
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

### Removing

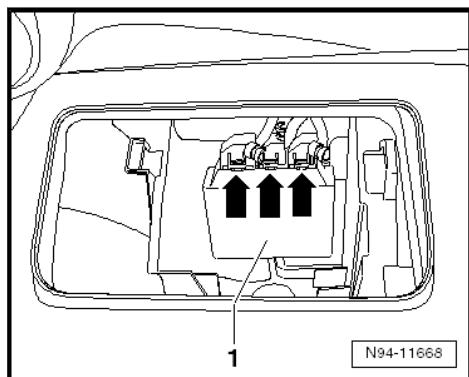
- Remove the trim on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Remove the screw -arrow- from the Parking Aid Control Module -J446- above the relay panel.



- Remove the windshield wiper system. Refer to ⇒ W4.2 in-  
dshield Wiper MotorV ", page 87 .
- Remove the nuts -arrows- and the cover -1-.



- Disconnect the connectors -arrows- and remove the Parking Aid Control Module -J446- -1- upward from the bracket.



## Installing

Install in reverse order of removal. Note the following:

- Tighten the screw on the Parking Aid Control Module -J446- to 1.5 Nm.

### Parking Aid Control Module -J446-, Coding

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 10 - Parking aid 2 J446
  - ◆ Parking aid 2 functions
  - ◆ Control module, coding

### 5.17.4 Adapting the Optical Illustration

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures



- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 10 - Parking aid 2 J446
- ◆ Parking aid 2 functions
- ◆ Adapting the optical illustration

### 5.17.5 Rear Parking Aid Sensor

#### Special tools and workshop equipment required

- ◆ Parking Aid Sender Release Tool -T10345-

Sensor in the rear bumper cover:

- ◆ Left Rear Center Parking Aid Sensor -G204-
- ◆ Left Rear Inner Parking Aid Sensor -G334-
- ◆ Right Rear Inner Parking Aid Sensor -G335-
- ◆ Right Rear Center Parking Aid Sensor -G205-



#### Note

- ◆ Due to different software versions, different sensor names may be displayed in the first Parking Aid Control Module -J446- software version. If this is the case, the following allocation applies:
  - ◆ Left Rear Center Parking Aid Sensor -G204- is Left Rear Parking Aid Sensor -G203-
  - ◆ Left Rear Inner Parking Aid Sensor -G334- is Left Rear Center Parking Aid Sensor -G204-
  - ◆ Right Rear Inner Parking Aid Sensor -G335- is Right Rear Center Parking Aid Sensor -G205-
  - ◆ Right Rear Center Parking Aid Sensor -G205- is Right Rear Parking Aid Sensor -G206-

Removal and installation is the same for all sensors so the following information describes only one of them.



#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

#### Removing

- Remove the rear bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Description and Operation.

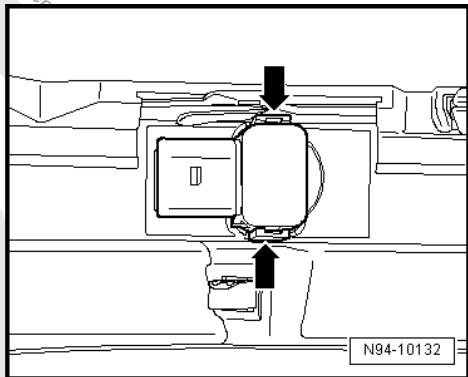


#### Caution

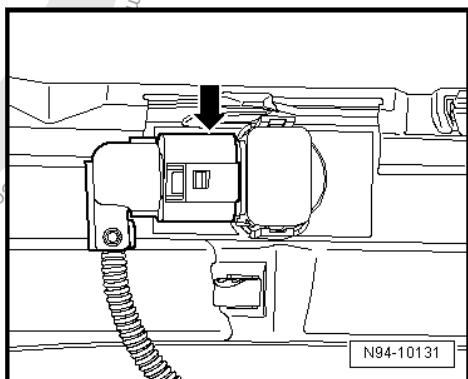
- ◆ Always follow the sequence for removing the sensor.
- ◆ Otherwise, the sensor may be damaged. Hairline cracks which lead to sensor failure can develop if too much force is used on the sensor.
- ◆ Remove the sensor from the bracket first and then disconnect the connector from the sensor.



- Open the tabs -arrows- with Parking Aid Sender Release Tool -T10345- and remove the sensor from the bumper cover with the connector still connected.



- Disconnect the connector -arrow- when it is removed.



## Installing

Install in reverse order of removal. Note the following:



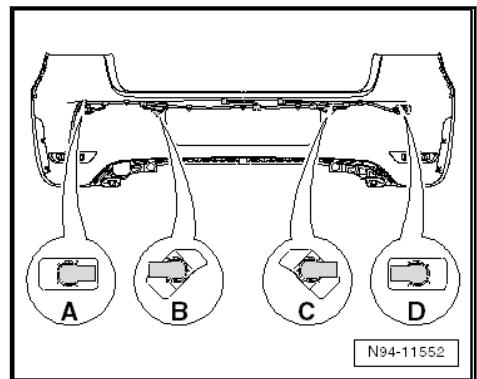
### Caution

- ◆ ***Do not bend the coupling ring.***
- ◆ ***Using a damaged coupling ring can cause malfunctions.***
- ◆ ***Replace any damaged decoupling rings.***

Sensor brackets are designed in different shapes and must be matched to the respective component location in the bumper cover.

Be sure to align the electric connection on the sensor when installing it.

**Parking aid sensor allocation inside the rear bumper cover:**

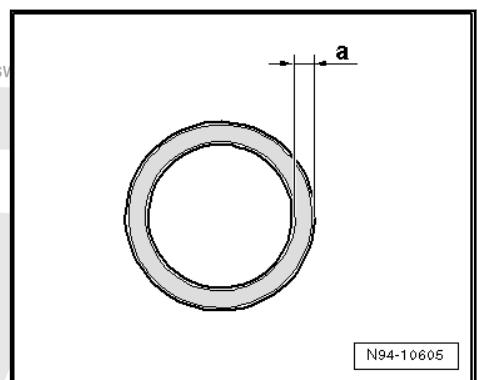


- A - OR - Outer Right
- B - RRC - Rear Right Center
- C - LRC - Left Rear Center
- D - LR - Outer Rear

When removing the sensor, make sure that the decoupling ring (black silicone ring) remains on the sensor head and does not remain in the bracket or get lost.

Both retaining tabs on the sensor must engage audibly in the sensor bracket when installing.

- Make sure the sensor is seated correctly in the bracket after installation.



Dimension -a- for the circular gap between the sensor head and bumper cover must be even all around on the outer side of the bumper cover.

### 5.17.6 Front Parking Aid Sensor



- ◆ The following illustrations show how to remove and install the Left Front Parking Aid Sensor.
- ◆ Removing and installing the other parking aid sensors is identical.
- ◆ It is possible to remove both outer Left Front Parking Aid Sensor -G255- and the Right Front Parking Aid Sensor -G252- through the opening for the fog lamp. Remove the cover in the front bumper cover or the fog lamp, depending on the equipment level of the vehicle. Refer to ⇒ L5.5 amp, page 237.



**Caution**

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

**Removing**

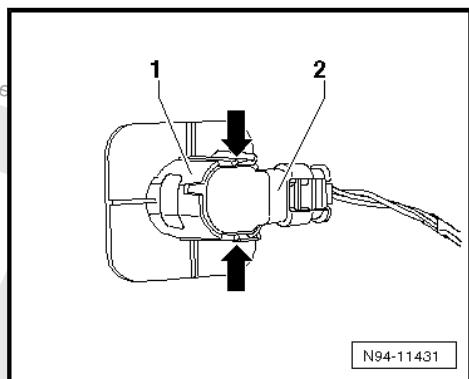
- Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Description and Operation.



**Caution**

- ◆ Always follow the sequence for removing the sensor.
- ◆ Otherwise, the sensor may be damaged. Hairline cracks which lead to sensor failure can develop if too much force is used on the sensor.
- ◆ Remove the sensor from the bracket first and then disconnect the connector from the sensor.

- Push the locking mechanisms -arrows- on the sensor mount -1- toward the outside.



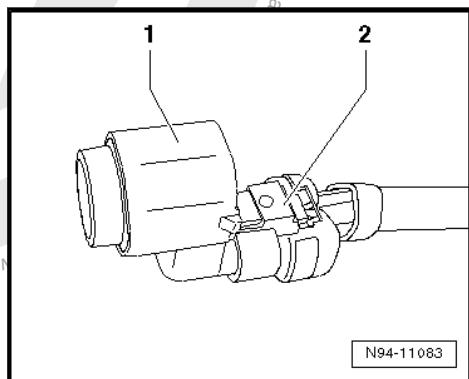
N94-11431

- Pull the sensor -2- backward out of the sensor bracket with the wires connected.

When removing the sensor, make sure that the decoupling ring (black silicone ring) remains on the sensor head and does not remain in the bracket or get lost.

Do not bend the decoupling ring.

- Disconnect the connector -2- from the sensor -1-.



N94-11083



## Installing

Install in reverse order of removal. Note the following:

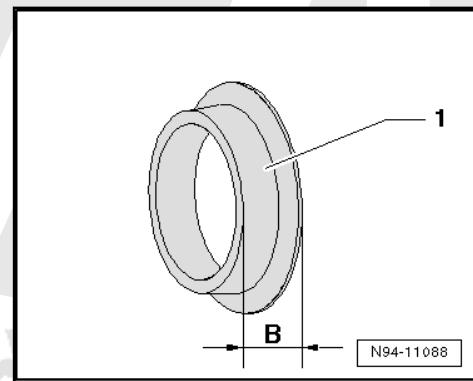


### Caution

- ◆ ***Do not bend the coupling ring.***
- ◆ ***An incorrect or damaged coupling ring can lead to malfunctions.***
- ◆ ***Replace any damaged decoupling rings and be sure to install the correct decoupling ring.***

Since the lengths of the sensor heads of the front parking aid are different, the high coupling rings installed are also different.

- Make sure the correct decoupling ring is installed on the sensor head.



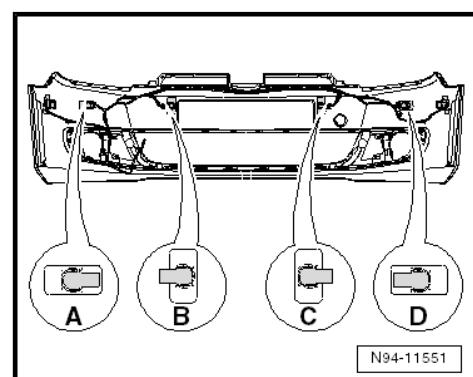
Type of sensor	Height of decoupling ring -B-
Front Parking Aid Sensor	5.7 mm

- Replace the sensor decoupling ring -1-.
- Install the sensor in the correct location in the bumper cover.

Sensor brackets are designed in different shapes and must be matched to the respective component location in the bumper cover.

Be sure to align the electric connection on the sensor when installing it.

**Parking aid sensors allocation inside the front bumper cover:**



A - Left Outer

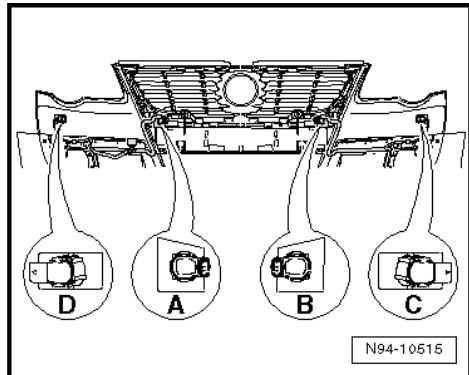
B - Left Center



C - Right Center

D - Right Outer

**Sensor retainer allocation in inner side of front bumper cover  
from MY 2011:**



N94-10515

A - Left Center (in radiator protective grille)

B - Right Center (in radiator protective grille)

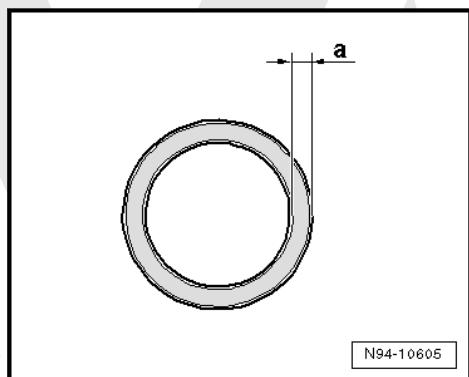
C - Right Outer

D - Left Outer

When installing the sensor, make sure the decoupling ring is correctly mounted on the sensor head and that it does not fall off or roll up when being inserted into the sensor bracket.

Both retaining clips on the sensor holder must engage audibly when installing sensor.

- Make sure the sensor is seated correctly in the bracket after installation.



N94-10605

Dimension -a- for the circular gap between the sensor head and bumper cover must be even all around on the outer side of the bumper cover.

### 5.17.7 Sensor Mount in Bumper Cover, Re-pairing

**Special tools and workshop equipment required**

- ◆ Centring Drift -VAS6614/3-

**New front bumper cover with sensor mount glued on**

If a new front bumper cover is installed, the parking aid sensor brackets are already installed and the new bumper cover can be painted. Follow the requirements for painting.



## New radiator grill

The sensor brackets are already installed and the new radiator grille can be painted. Follow the requirements for painting.

## New sensor mount for the parking aid in the front bumper cover with radiator grille

If an individual sensor bracket is replaced on the existing bumper cover or radiator grill, preparation is needed before bonding the bracket in place. When bonding a new sensor bracket in the bumper cover or radiator grill, prepare the adhesive surfaces and bonding process first.

## New front bumper cover with the radiator grille without the sensor mount glued on

- ◆ Procedure. Refer to ⇒ Body Exterior; Rep. Gr. 63; Removal and Installation.

## New rear bumper cover without the sensor mount glued on

- ◆ Procedure. Refer to ⇒ Body Exterior; Rep. Gr. 63; Removal and Installation.

## Sensor mount allocation

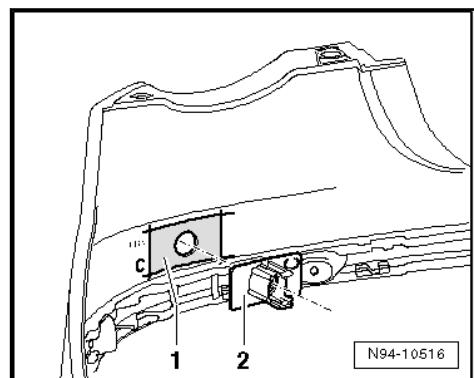
- ◆ Front bumper cover through MY 2010, refer to ⇒ Fig. ““Parking aid sensors allocation inside the front bumper cover:””, page 319
- ◆ Front bumper cover from MY 2010, refer to ⇒ Fig. ““Sensor retainer allocation in inner side of front bumper cover from MY 2011:””, page 320
- ◆ Rear bumper cover, refer to ⇒ Fig. ““Parking aid sensor allocation inside the rear bumper cover:””, page 316

## Bonding Sensor Bracket in Bumper Cover

Bonding of sensor bracket into front and rear bumper cover is performed in the same way. To assist in aligning the sensor retainers in their proper positions when bonding, sensor location punched holes with corresponding retainer bonding adhesive surfaces are marked on the inside of the bumper cover. Before proceeding with bonding procedure, ensure sensor retainer and bumper cover materials are between 15-25° C (59-77° F).

### Procedure

- Remove any remaining adhesive still on the inside of the bumper cover.
- Clean the marked adhesive surface -1- on the inside of the bumper thoroughly with isopropyl alcohol.



- Apply the bonding agent “Scotchmount 4298” evenly in the marked adhesion surface -1-.
- Let the adhesive air dry for approximately five minutes.



- Allocate the sensor brackets to be bonded to their proper installation location .

Front bumper cover, refer to ⇒ Fig. ““Parking aid sensors allocation inside the front bumper cover:””, page 319

Rear bumper cover, refer to ⇒ Fig. ““Parking aid sensor allocation inside the rear bumper cover:””, page 316

- Remove both protection foils from sensor retainer bonding area -2- so that a gray surface becomes visible.
- Align the sensor bracket -2- with respect to marked adhesive surface -1- so that there is a uniform edge of approximately 3 mm. Use Centring Drift -VAS6614/3- for aligning with the punched hole.

Make sure that recesses for sensor connection in the sensor bracket face in the correct direction as depicted in the assignment. If sensor bracket is glued in incorrectly, connection wires for sensor are too short.

- Press the sensor bracket -2- with significant pressure into the bumper cover for approximately 10 seconds.

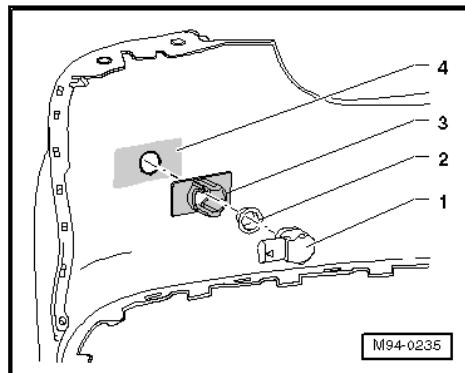
The contact pressure and pressing time are crucial for the adhesive durability.

#### Sensor Bracket, Bonding in Radiator Grille

When bonding the sensor bracket in radiator grille, take special care that the sensor bracket is aligned centrally to the punch hole in the radiator protective grille, since there is no enclosing joint present on the sensor bracket in this case. Should the sensor retainer not be perfectly aligned straight and centered relative to the sensor location (punched hole) in the radiator grille, the coupling ring will be stressed upon installation of the sensor, and system function may be adversely affected. Before proceeding with bonding procedure, ensure sensor retainer and radiator grille materials are between 15-25° C (59-77° F).

#### Procedure

- Clean the adhesive surface on the inside of the radiator grille thoroughly with isopropyl.



- 1 - Parking aid sensor
- 2 - Decoupling ring
- 3 - Sensor mount
- 4 - Adhesive surface on the inside of the bumper

- Apply the bonding agent “Scotchmount 4298” evenly in the adhesion surface around the punched hole.
- Let the adhesive air dry for approximately five minutes.



- Allocate the sensor brackets to be bonded to their proper installation location.

Front bumper cover [⇒ page 320](#)

- Insert chrome-covered sensor -1- into sensor bracket -3- until both retaining clips click into place.
- Remove both protection foils from sensor retainer bonding area -3- so that a gray surface becomes visible.
- Align the sensor head exactly in the middle of the punched hole in the radiator grille.

If sensor head is not aligned exactly in the center of the punch hole in the radiator protective grille, the decoupling ring (black silicone ring) on the chrome sensor is under pressure after installation, causing parking aid system malfunctions.

- Press the sensor bracket 2 with significant pressure into the radiator grille for approximately 10 seconds.

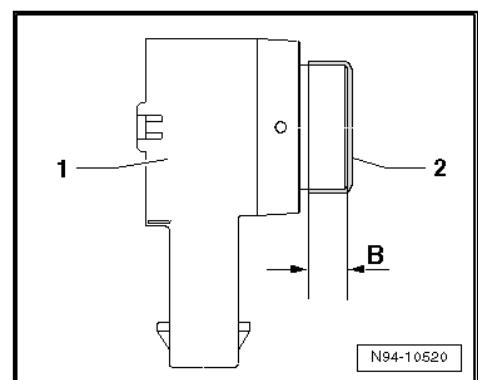
The contact pressure and pressing time are crucial for the adhesive durability.

### 5.17.8 Parking Aid Sensor, Painting

If a new parking aid sensor is installed, the sensor head must first be painted to match the color of the bumper cover. The following requirements must be observed when painting the sensors to ensure the parking aid system will work correctly.

#### Procedure

- Remove the decoupling ring (black silicone ring) from the new sensor head.
- Use isopropyl alcohol to remove the grease from the black sensor head -1- in the area to be painted -2-.



- Paint the sensor in the area to be painted -2- the same color as the bumper cover.



#### Note

*Paint application dimension -B- is 3 mm (+ maximum 2 mm).*

- When the paint has dried, reinstall the decoupling ring (black silicone ring) on the sensor head.



**Caution**

- ◆ *Do not bend the coupling ring.*
- ◆ *Using a damaged coupling ring can cause malfunctions.*
- ◆ *Replace any damaged decoupling rings.*

### 5.17.9 Rear Parking Aid Warning Buzzer - H15-, Sedan

The Rear Parking Aid Warning Buzzer -H15- is secured to the rear shelf plate. It is accessible from the luggage compartment.

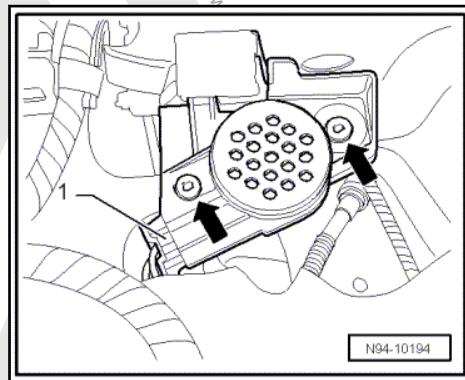


**Caution**

- ◆ *Turn off the ignition and all electrical equipment.*
- ◆ *Remove the key.*

#### Removing

- Disengage the connector -1- and disconnect.



- Loosen the expanding rivet -arrows- and remove the Rear Parking Aid Warning Buzzer -H15- from the bracket.

#### Installing

Install in reverse order of removal.

### 5.17.10 Rear Parking Aid Warning Buzzer - H15-, Wagon

The Rear Parking Aid Warning Buzzer -H15- is located behind the right luggage compartment side trim, near the seat belt mount.



**Caution**

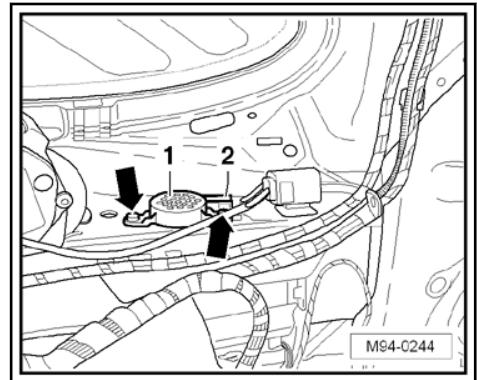
- ◆ *Turn off the ignition and all electrical equipment.*
- ◆ *Remove the key.*

#### Removing

- Remove trim in the right of the luggage compartment. Refer to ⇒ Body Interior; Rep. Gr. 70; Removal and Installation.



- Disengage the connector -2- and disconnect.



- Loosen the expanding rivet -arrows- and remove the Rear Parking Aid Warning Buzzer -H15- -1-.

#### Installing

Install in reverse order of removal.



*It is not necessary to perform any coding, a basic setting or an adaptation when a new Rear Parking Aid Warning Buzzer -H15- is installed.*

### 5.17.11 Rear Parking Aid Warning Buzzer - H15-, Adjusting Volume

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 10 - Parking aid 2 J446
  - ◆ Parking aid 2 functions
  - ◆ Rear Parking Aid Warning Buzzer, Adjusting Volume

### 5.17.12 Rear Parking Aid Warning Buzzer - H15-, Adjusting Tone

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems



- ◆ 10 - Parking aid 2 J446
- ◆ Parking aid 2 functions
- ◆ Rear Parking Aid Warning Buzzer Tone, Adjusting

### 5.17.13 Front Parking Aid Warning Buzzer - H22-

The Front Parking Aid Warning Buzzer -H22- is located behind the instrument panel on the driver side on the relay panel bracket.

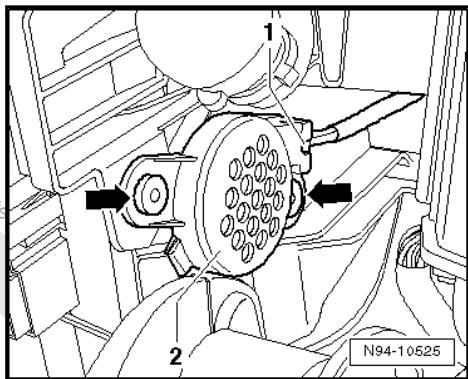


#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

#### Removing

- Remove the trim on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Loosen the expanding rivets -arrows-.



- Disconnect the connector -1- and remove the Front Parking Aid Warning Buzzer -H22- -2-.

#### Installing

Install in reverse order of removal.



#### Note

If a new Front Parking Aid Warning Buzzer -H22- is installed, it is not necessary to perform coding, basic setting or adaptation.

### 5.17.14 Front Parking Aid Warning Buzzer - H22-, Adjusting Volume

This function can be used to the adjust the volume of the Front Parking Aid Warning Buzzer -H22-.

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the "function/component selection" and the following menu options one after the other:



- ◆ Body
- ◆ Body repair procedures
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 10 - Parking aid 2 J446
- ◆ Parking aid 2 functions
- ◆ Front Parking Aid Warning Buzzer, Adjusting Volume

### 5.17.15 Front Parking Aid Warning Buzzer - H22-, Adjusting Tone

This function can be used to the adjust the tone of the Front Parking Aid Warning Buzzer -H22-.

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 10 - Parking aid 2 J446
  - ◆ Parking aid 2 functions
  - ◆ Front Parking Aid Warning Buzzer , Adjusting Tone

## 5.18 Parallel Parking Assist

⇒ [P5.18.1 arallel Parking Assistance Control ModuleJ791 ", page 327](#)

⇒ [P5.18.2 arking Assistance Sensor", page 329](#)

⇒ [P5.18.3 arking Assistance Sensor, Painting", page 332](#)

⇒ [F5.18.4 ront Parking Aid Warning BuzzerH22 ", page 333](#)

⇒ [F5.18.5 ront Parking Aid Warning BuzzerH22, Adjusting Vol-  
ume", page 333](#)

⇒ [F5.18.6 ront Parking Aid Warning BuzzerH22, Adjusting  
Tone", page 334](#)

⇒ [R5.18.7 ear Parking Aid Warning BuzzerH15 ", page 334](#)

⇒ [R5.18.8 ear Parking Aid Warning BuzzerH15, Adjusting Vol-  
ume", page 334](#)

⇒ [R5.18.9 ear Parking Aid Warning BuzzerH15, Adjusting  
Tone", page 334](#)

### 5.18.1 Parallel Parking Assistance Control Module -J791-

The Parallel Parking Assistance Control Module -J791- is located behind the instrument panel on the driver side above the relay panel. If the vehicle has parking aid, then the Parallel Parking Assistance Control Module -J791- also controls the parking aid (Parking Aid Control Module -J446-).

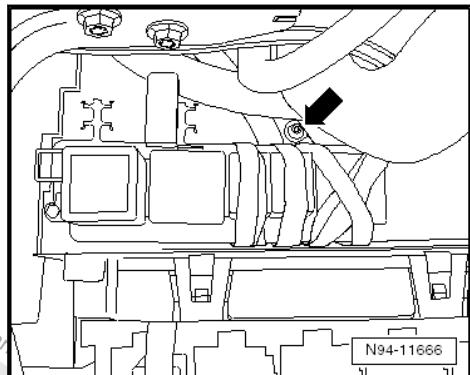


**Caution**

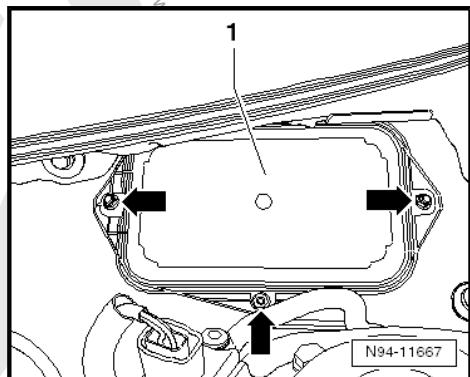
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

**Removing**

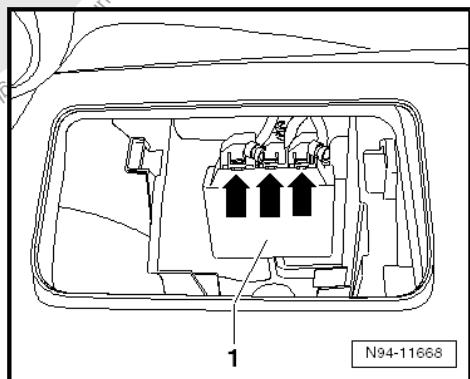
- Remove the trim on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Remove the screw -arrow- from the Parallel Parking Assistance Control Module -J791- above the relay panel.



- Remove the windshield wiper system. Refer to ⇒ W4.2 in-  
[dshield Wiper MotorV](#), page 87 .
- Remove the nuts -arrows- and the cover -1-.



- Disconnect the connectors -arrows- and remove the Parking Aid Control Module -J446- -1- upward from the bracket.





## Installing

Install in reverse order of removal. Note the following:

- Tighten the screw on the Parallel Parking Assistance Control Module -J791- to 1.5 Nm.

## Parallel Parking Assistance Control Module -J791-, Coding

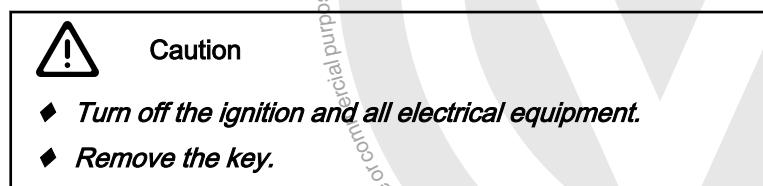
- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 10 - parallel parking assistance J791
  - ◆ parallel parking assistance functions
  - ◆ Control module, coding

### 5.18.2 Parallel Parking Assistance Sensor

The parallel parking assistance sensors are located in the front bumper cover. Both of the parallel parking assistance sensors sit sideways in the outer locations in the bumper cover and are used with the parking aid sensors for measuring during the parking process.

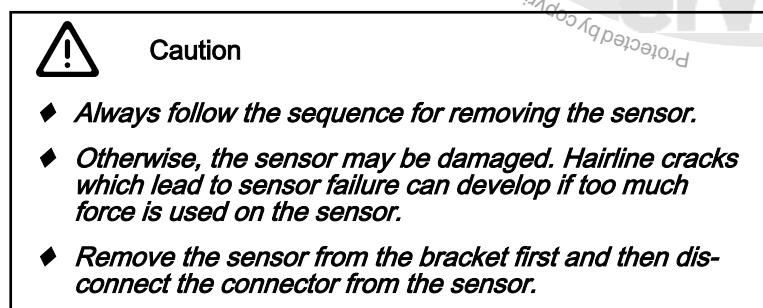
The following parallel parking assistance sensors are located in the front bumper cover:

- ◆ Left Front Parallel Parking Assistance Sensor -G568-
- ◆ Right Front Parallel Parking Assistance Sensor -G569-

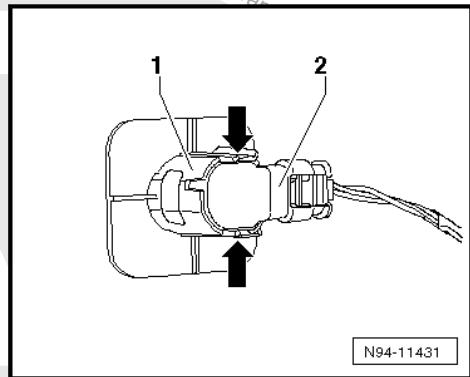


## Removing

- Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Description and Operation.



- Push the locking mechanisms -arrows- on the sensor mount -1- toward the outside.

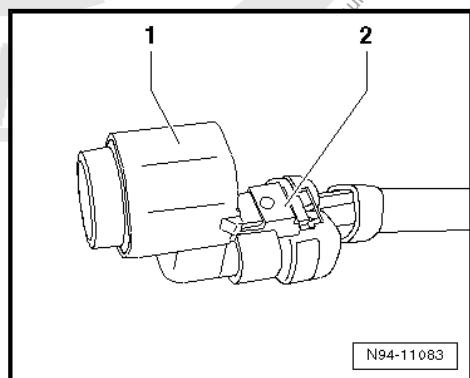


- Pull the sensor -2- backward out of the sensor bracket with the wires connected.

When removing the sensor, make sure that the decoupling ring (black silicone ring) remains on the sensor head and does not remain in the bracket or get lost.

Do not bend the coupling ring.

- Disconnect the connector -2- from the sensor -1-.



## Installing

Install in reverse order of removal. Note the following:



### Caution

*An incorrect or damaged coupling ring can lead to malfunctions.*

*Do not bend the coupling ring.*

*Replace any damaged decoupling rings and be sure install the correct decoupling ring.*

Since the lengths of the sensor heads of the front parking aid and the parallel parking assistance sensors are different, the high coupling rings installed are also different.

- Make sure the correct decoupling ring is installed on the sensor head.

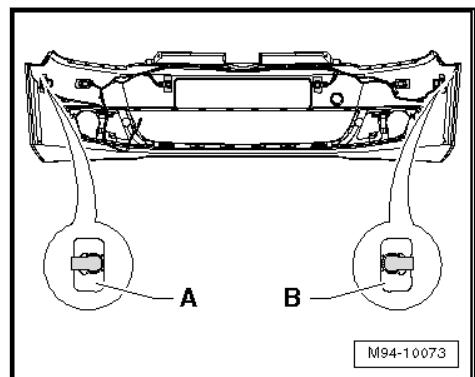
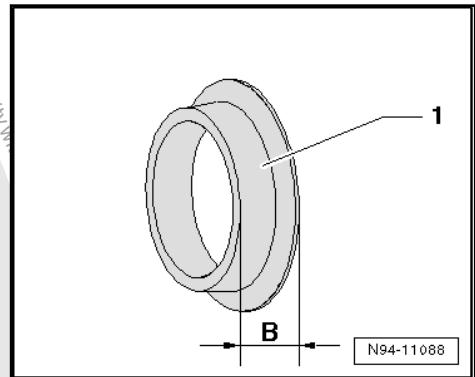


Type of sensor	Height of decoupling ring -B-
Front Parking Aid Sensor	5.7 mm
Parallel parking assistance sensor	9.05 mm

- Replace the sensor decoupling ring -1-.

Be sure to align the electric connection on the sensor when installing it.

#### Sensor allocation on the inside of the front bumper cover



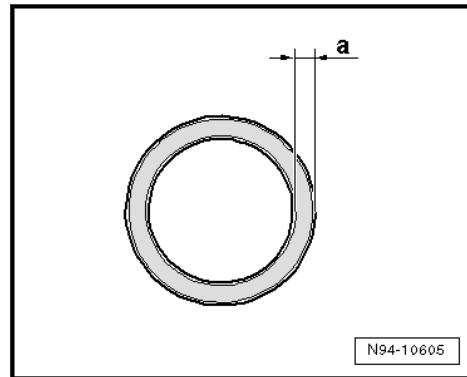
A - LF - Left Front Parallel Parking Assistance Sensor -G568-bracket

B - RF - Right Front Parallel Parking Assistance Sensor -G569-bracket

When installing the sensor, make sure the decoupling ring is correctly mounted on the sensor head and that it does not fall off or roll up when being inserted into the sensor bracket.

Both retaining clips on the sensor holder must engage audibly when installing sensor.

- Make sure the sensor is seated correctly in the bracket after installation. Dimension -a- for the circular gap between the sensor head and bumper cover must be even all around on the outer side of the bumper cover.



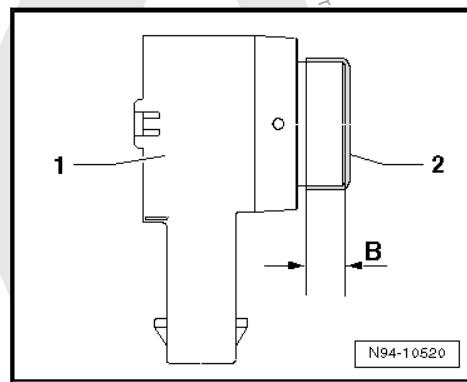
N94-10605

### 5.18.3 Parallel Parking Assistance Sensor, Painting

If a new parallel parking assistance sensor is installed, the sensor head must first be painted to match the color of the bumper cover. The following requirements must be observed when painting the sensors to ensure the parking aid system will work correctly.

#### Procedure

- Remove the decoupling ring (black silicone ring) from the new sensor head.
- Use isopropyl alcohol to remove the grease from the black sensor head -1- in the area to be painted -2-.



N94-10520

- Paint the sensor in the area to be painted -2- the same color as the bumper cover.



Note

Paint application dimension -B- is 3 mm (+ maximum 2 mm).

- When the paint has dried, reinstall the decoupling ring (black silicone ring) on the sensor head.



Caution

- ◆ ***Do not bend the coupling ring.***
- ◆ ***Using a damaged coupling ring can cause malfunctions.***
- ◆ ***Replace any damaged decoupling rings.***



## 5.18.4 Front Parking Aid Warning Buzzer - H22-

The Front Parking Aid Warning Buzzer -H22- is located behind the instrument panel on the driver side on the relay panel bracket.

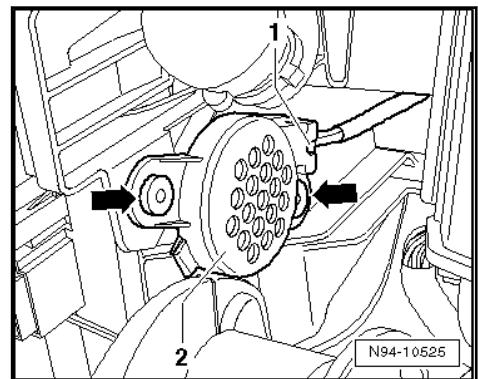


### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

### Removing

- Remove the trim on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Loosen the expanding rivets -arrows-.



- Disconnect the connector -1- and remove the Front Parking Aid Warning Buzzer -H22- -2-.

### Installing

Install in reverse order of removal.



### Note

If a new Front Parking Aid Warning Buzzer -H22- is installed, it is not necessary to perform coding, basic setting or adaptation.

## 5.18.5 Front Parking Aid Warning Buzzer - H22-, Adjusting Volume

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 10 - parallel parking assistance J791
  - ◆ parallel parking assistance functions



- ◆ Front Parking Aid Warning Buzzer, Adjusting Volume

## 5.18.6 Front Parking Aid Warning Buzzer - H22-, Adjusting Tone

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 10 - parallel parking assistance J791
  - ◆ parallel parking assistance functions
  - ◆ Front Parking Aid Warning Buzzer , Adjusting Tone

## 5.18.7 Rear Parking Aid Warning Buzzer - H15-

The Parallel Parking Assistance Control Module -J791- controls the functions of the parking aid on vehicles with a parking aid. For this reason, the Rear Parking Aid Warning Buzzer -H15- adaptations are performed by the Parallel Parking Assistance Control Module -J791-.

Rear Parking Aid Warning Buzzer -H15-, Removal and Installation, refer to **⇒ R5.17.9 rear Parking Aid Warning BuzzerH15, Sedan**, page 324.

## 5.18.8 Rear Parking Aid Warning Buzzer - H15-, Adjusting Volume

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 10 - parallel parking assistance J791
  - ◆ parallel parking assistance functions
  - ◆ Rear Parking Aid Warning Buzzer, Adjusting Volume

## 5.18.9 Rear Parking Aid Warning Buzzer - H15-, Adjusting Tone

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:



- ◆ Body
- ◆ Body repair procedures
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 10 - parallel parking assistance J791
- ◆ parallel parking assistance functions
- ◆ Rear Parking Aid Warning Buzzer Tone, Adjusting

## 5.19 Headlamp Assistant

⇒ [A5.19.1 utomatic High Beam Control ModuleJ844 ", page 335](#)

⇒ [A5.19.2 utomatic High Beam Control ModuleJ844 ", page 335](#)

⇒ [L5.19.3 ight Recognition SensorG399 ", page 336](#)

### 5.19.1 Automatic High Beam Control Module -J844-

Always perform the “replace Automatic High Beam Control Module” procedure to read the stored data from the Automatic High Beam Control Module -J844- before removing the interior rearview mirror, refer to ⇒ [A5.19.2 utomatic High Beam Control ModuleJ844 ", page 335](#).

The Automatic High Beam Control Module -J844- is installed inside the interior rearview mirror and cannot be replaced separately. If a failure occurs, the entire interior rearview mirror must be replaced.

#### Removing

- Remove the interior rearview mirror. Refer to ⇒ [Body Interior; Rep. Gr. 68; Removal and Installation](#).

#### Installing

- Install the interior rearview mirror. Refer to ⇒ [Body Interior; Rep. Gr. 68; Removal and Installation](#).
- Code the new Automatic High Beam Assist Control Module -J844- after installing it. Refer to ⇒ [, page 336](#).

It is not necessary to calibrate the new Automatic High Beam Assist Control Module -J844-. The system automatically calibrates the control module.

### 5.19.2 Automatic High Beam Control Module -J844-

The procedure for “replacing the Automatic High Beam Control Module” includes the following steps:

- ◆ If a new Automatic High Beam Control Module -J844- (new interior rearview mirror) is being installed, then it is necessary to code the Automatic High Beam Control Module -J844-.
- ◆ Then the Automatic High Beam Control Module -J844- must be adapted.



#### Note

*The procedure to “replace the Automatic High Beam Control Module” can only be performed with the Vehicle Diagnostic Tester in the “guided fault finding” function.*



## Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 20 - Headlamp Assistant J844
  - ◆ High beam assistant, functions
  - ◆ Replace control module

### Automatic High Beam Control Module -J844-, Coding

Code the new Automatic High Beam Control Module after installing it.

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 20 - Headlamp Assistant J844
  - ◆ High beam assistant, functions
  - ◆ Control module, coding

### 5.19.3 Light Recognition Sensor -G399-

Always perform the “replace Automatic High Beam Control Module” procedure to read the stored data from the Automatic High Beam Control Module -J844- before removing the interior rearview mirror, refer to [⇒ A5.19.2 utomatic High Beam Control ModuleJ844](#), page 335 .

The Light Recognition Sensor -G399- for the high beam assist is installed in the mirror base for the interior rearview mirror and cannot be replaced separately. If a failure occurs, the entire interior rearview mirror must be replaced.

#### Removing

- Removing and installing the interior rearview mirror. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.

#### Installing

- Install the interior rearview mirror. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Code the Automatic High Beam Control Module -G399- inside the interior rearview mirror after installing a new Light Recognition Sensor -J844-. Refer to [⇒ , page 336](#) .

It is not necessary to calibrate the new Light Recognition Sensor -G399-. The system automatically calibrates the control module.



## 5.20 Trailer Hitch

⇒ [T5.20.1 trailer SocketU10 ", page 337](#)

⇒ [T5.20.2 owing Recognition Control ModuleJ345, through MY 2009", page 338](#)

⇒ [T5.20.3 owing Recognition Control ModuleJ345, from MY 2010", page 340](#)

### 5.20.1 Trailer Socket -U10-

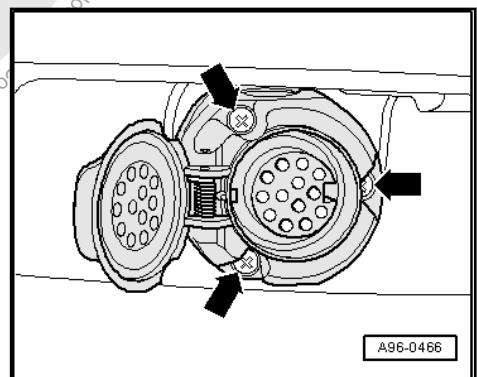


#### Caution

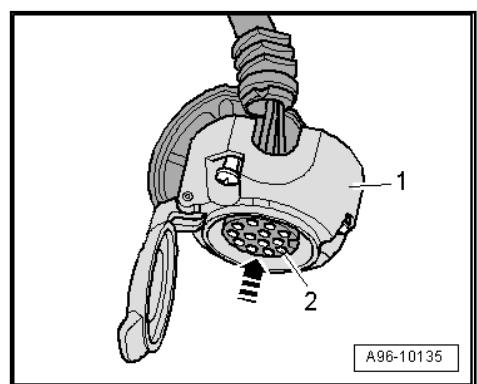
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.

#### Removing

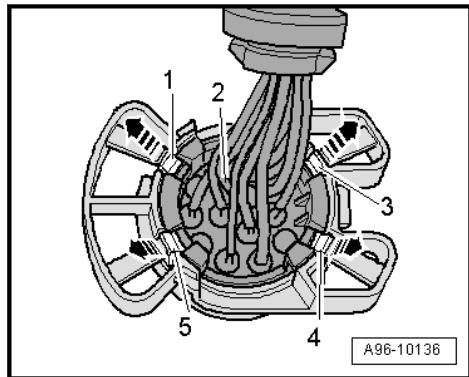
- Remove the bolts -arrows-.



- Remove the trailer socket -U10-.
- Remove the connectors -2- from the Trailer Socket -U10- -1- in the direction of the -arrow-.



- Open the tabs -arrows- and unlock the clips -1- and -3- through -5-.



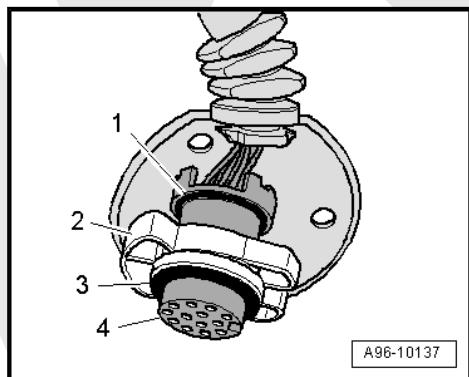
- Remove the retainer from the connectors -2-.

#### Installing

Install in reverse order of removal. Note the following:

Make sure that the sealing rings -1- and -3- are not damaged.

- Push the connectors -4- into the retainer -2- until they audibly latch.



## 5.20.2 Towing Recognition Control Module - J345-, through MY 2009

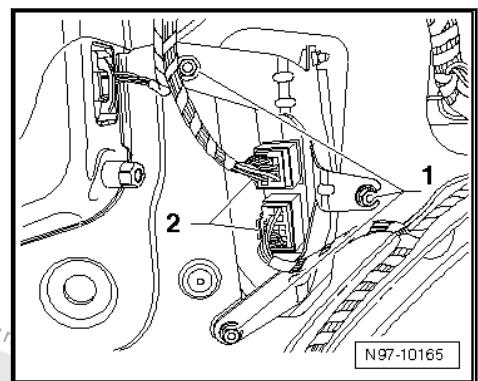
#### Special tools and workshop equipment required

- ◆ Torque Wrench -V.A.G 1783-

The “replace the towing recognition control module” procedure must always be performed to read the codes that are stored in the module before the Towing Recognition Control Module -J345- is removed, refer to [⇒, page 305](#).

#### Removing

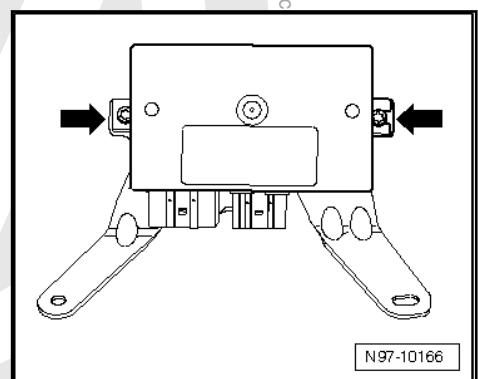
- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove trim in the left of the luggage compartment. Refer to ⇒ Body Interior; Rep. Gr. 70; Removal and Installation.
- Disconnect the connectors -2-.



### Note

*The number of connectors depends on the vehicle equipment.*

- Remove the screws -1- and Towing Recognition Control Module -J345- with the bracket from the vehicle.
- Remove the screws -arrows- and the Towing Recognition Control Module -J345-.



### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specifications.

### Tightening Specifications

- ◆ Bracket screws: 1.2 Nm
- ◆ Control module screws: 2 Nm

### Towing Recognition Control Module -J345-, Coding

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Towing sensor
  - ◆ Functions



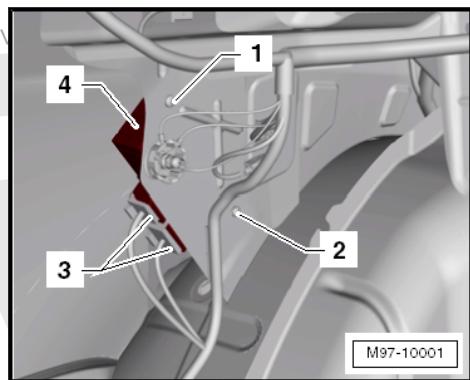
- ◆ Replace the Towing Recognition Control Module

### 5.20.3 Towing Recognition Control Module - J345-, from MY 2010

The “replace the Towing Recognition Control Module” procedure must always be performed to read the codes that are stored in the module before the Towing Recognition Control Module -J345- is removed, refer to [page 340](#).

#### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove trim in the left of the luggage compartment. Refer to → Body Interior; Rep. Gr. 70; Removal and Installation.
- Remove the screws -1- and -2- and then remove the Towing Recognition Control Module -J345- -4- from the plate.



- Disconnect the connectors -3-.

#### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specifications.

#### Tightening Specifications

- ◆ Control module screws: 2 Nm

#### Towing Recognition Control Module -J345-, Coding

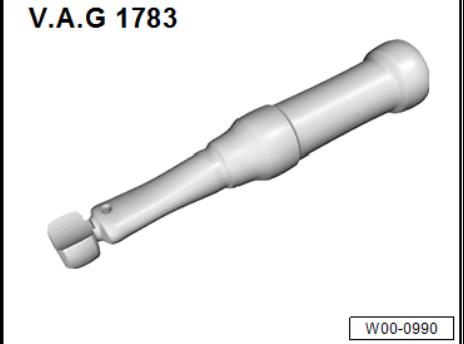
- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 69 - Towing recognition J345
  - ◆ Towing recognition functions
  - ◆ Replace control module



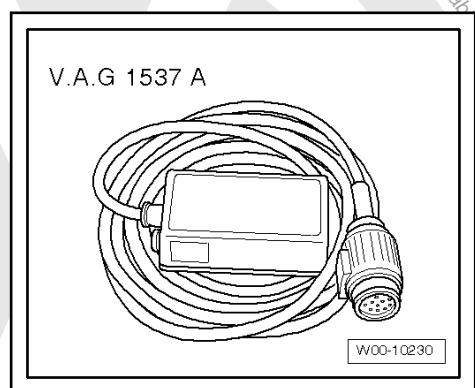
## 6 Special Tools

Special tools and workshop equipment required

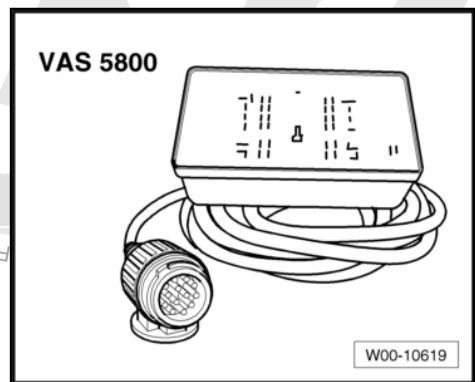
- ◆ Torque Wrench -V.A.G 1783-



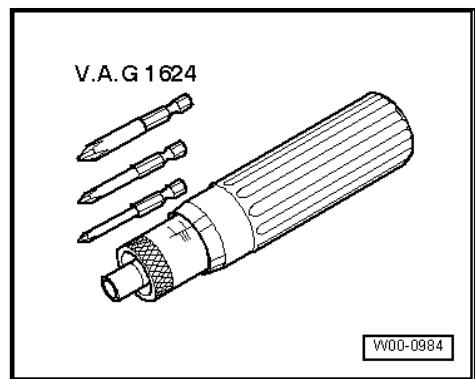
- ◆ Centring Drift -VAS6614/3-
- ◆ Power Outlet Tester -V.A.G 1537/A-



- ◆ Trailer Socket Tester -VAS 5800-

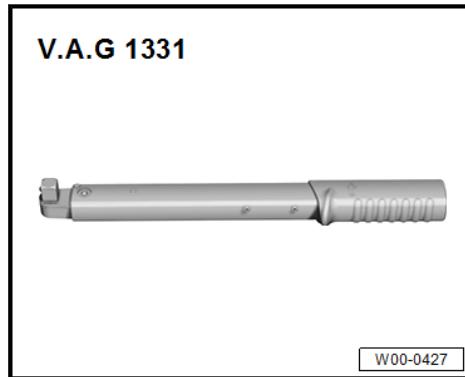


- ◆ Torque Screwdriver -V.A.G 1624-

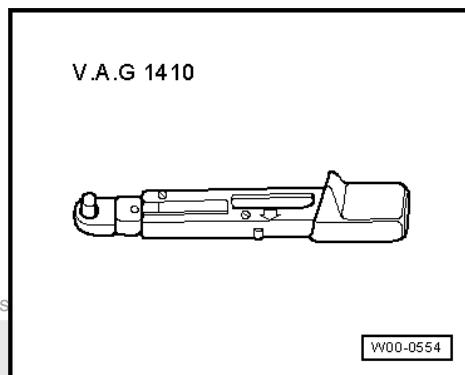




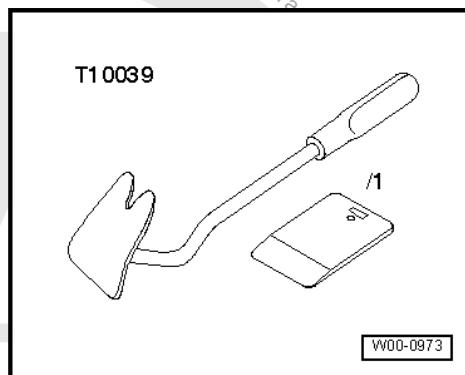
- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-



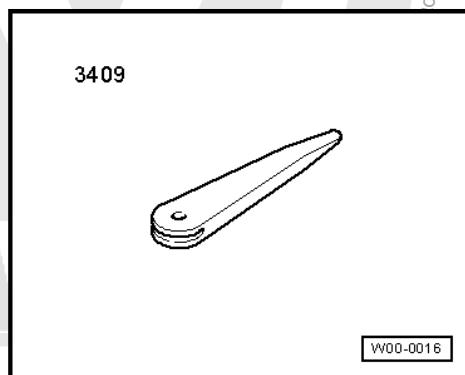
- ◆ Angled hand drill
- ◆ Torque Wrench -V.A.G 1410-



- ◆ Trim Removal Wedge -T10039/1-

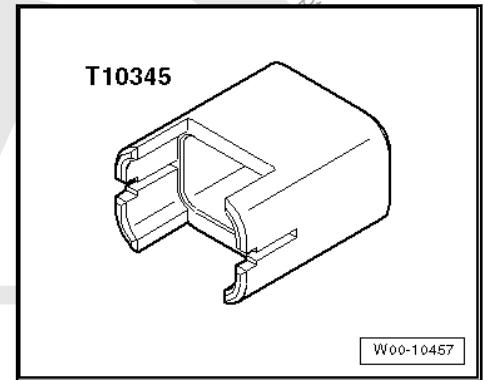


- ◆ Trim Removal Wedge -3409-





◆ Parking Aid Sender Release Tool-T10345-



erWin





## 96 – Interior Lights, Switches

### 1 General Information

- ⇒ [E1.1 Engine Compartment Lamp W27 ", page 344](#)
- ⇒ [D1.2 Door Lock Components", page 344](#)
- ⇒ [D1.3 Door Lock Components", page 344](#)
- ⇒ [A1.4 Head and Switches in Roof Trim Panel", page 345](#)
- ⇒ [A1.5 , page 345](#)
- ⇒ [K1.6 Key", page 346](#)
- ⇒ [A1.7 Alarm System", page 346](#)

#### 1.1 Engine Compartment Lamp -W27-

The Jetta and Golf wagon do not have an Engine Compartment Light -W27-.

#### 1.2 Front Door Lock Components

Driver side door lock (depending on the vehicle equipment level):

- ◆ Driver Door Contact Switch -F2-
- ◆ Driver Door Central Locking Lock Unit -F220-
- ◆ Driver Door Central Locking System Motor -V56-
- ◆ Driver Door Central Locking (Safe) Motor -V161-

Passenger side door lock (depending on the vehicle equipment level):

- ◆ Front Passenger Door Contact Switch -F3-
- ◆ Front Passenger Door Central Locking Lock Unit -F221-
- ◆ Front Passenger Door Central Locking System Motor -V57-
- ◆ Front Passenger Central Locking (Safe) Motor -V162-

The components listed above cannot be replaced separately.

- Replace the respective door lock if it is faulty. Refer to  
⇒ Body Exterior; Rep. Gr. 57; Removal and Installation.

#### 1.3 Rear Door Lock Components

Left rear door lock (depending on the vehicle equipment level)

- ◆ Left Rear Door Contact Switch -F10-
- ◆ Left Rear Central Locking Lock Unit -F222-
- ◆ Left Rear Central Locking (Lock) Motor -V214-
- ◆ Left Rear Central Locking (Safe) Motor -V163-

Right rear door lock (depending on the vehicle equipment level)

- ◆ Right Rear Door Contact Switch -F11-
- ◆ Right Rear Central Locking Lock Unit -F223-
- ◆ Right Rear Central Locking (Lock) Motor -V215-
- ◆ Right Rear Central Locking (Safe) Motor -V164-

The components listed above cannot be replaced separately.



- Replace the respective door lock if it is faulty. Refer to  
⇒ Body Exterior; Rep. Gr. 57; Removal and Installation.

## 1.4 Lamps and Switches in Roof Trim Panel

⇒ [F1.4.1 Front Interior Lamp -W1](#) ", page 345

⇒ [R1.4.2 Rear Interior Lamp -W43](#) ", page 345

### 1.4.1 Front Interior Lamp -W1-

The Front Interior Lamp -W1- consists of:

- ◆ Front Interior Lamp -W1-
- ◆ Left Center Reading Light -W39-
- ◆ Right Center Reading Light -W40-

The components cannot be replaced separately.

Replace the front interior lamp -W1- if faulty. Refer to ⇒ [a4.6 nd](#)  
[Switches in Roof Trim Panel](#)", page 378 .

### 1.4.2 Rear Interior Lamp -W43-

The Rear Interior Lamp -W43- consists of:

- ◆ Rear Interior Lamp -W43-
- ◆ Left Rear Reading Lamp -W11-
- ◆ Right Rear Reading Lamp -W12-
- ◆ Anti-Theft Alarm System Ultrasound Sensor -G209- (vehicles with Anti-Theft Alarm System only)

The components cannot be replaced separately.

Replace the rear interior lamp -W43- if faulty. Refer to ⇒ [a4.6 nd](#)  
[Switches in Roof Trim Panel](#)", page 378 .

#### Vehicles with Anti-Theft Alarm System:

The Anti-Theft Alarm System Ultrasound Sensor -G209- must not be moved from its pre-set position.

## 1.5 Immobilizer

The vehicle has a fourth generation immobilizer.

Modifications from Immobilizer 3:

- ◆ It is no longer possible to perform adaptation on components originating from other Volkswagen group brands
- ◆ Vehicle keys are pre-programmed with a basic coding by the manufacturer. This basic coding contains a specific manufacturer code. The adaptation of keys to a vehicle is only still possible when the key is programmed with the correct manufacturer code.

#### Anti-theft immobilizer component protection

- ◆ Anti-Theft Immobilizer Control Module -J362-
- ◆ Engine Control Module -J623-. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23; Description and Operation or ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 24; Description and Operation.
- ◆ Ignition key. Refer to ⇒ [K1.6 ey](#) ", page 346 .



## DTC recognition and display

The anti-theft immobilizer is equipped with OBD.

Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.

## 1.6 Ignition Key

Remove and install the battery in the remote key. Refer to  
⇒ Body Exterior; Rep. Gr. 57; Removal and Installation.

Removing and installing the radio-frequency unit (transmitter  
for radio operated central locking) for the ignition key. Refer to  
⇒ Body Exterior; Rep. Gr. 57; Removal and Installation.

## 1.7 Anti-Theft Alarm System

### Through MY 2009

Anti-theft alarm system functions are integrated in Comfort Sys-  
tem Central Control Module -J393-.

### From MY 2010

The anti-theft alarm system functions are integrated in the Vehi-  
cle Electrical System Control Module -J519-.

The anti-theft alarm system must be adapted ~~V5.5 ehicle  
Electrical System Control ModuleJ519~~, page 439 after the Ve-  
hicle Electrical System Control Module -J519- is replaced.

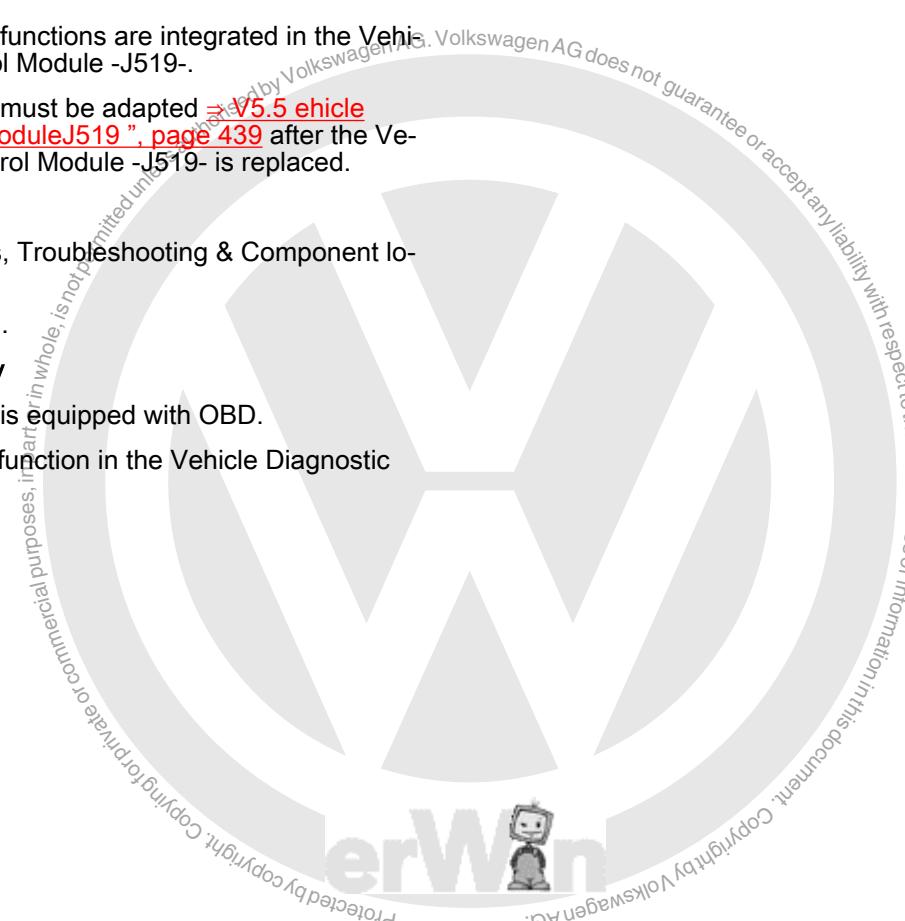
Additional information:

- ◆ Refer to Wiring diagrams, Troubleshooting & Component lo-  
cations.
- ◆ Refer to Owner's Manual.

### DTC recognition and display

The anti-theft alarm system is equipped with OBD.

Use "Guided Fault Finding" function in the Vehicle Diagnostic  
Tester.





## 2 Description and Operation

⇒ A2.1 larm System Overview", page 347

### 2.1 Anti-Theft Alarm System Overview



#### Note

*Components of Anti-Theft Alarm System are dependent on vehicle equipment.*





#### 1 - Alarm Horn -H12-

- Inside the right front wheel housing
- Checking. Refer to [V5.5.4 Vehicle Electrical System J519 Output Diagnostic Test Mode](#), page 441 .
- Removing and installing. Refer to [A4.9.9 Alarm Horn H12](#), page 406 .

#### 2 - Front Passenger Door Contact Switch -F3-

- Inside the Front Passenger Central Locking Lock Unit -F221-
- Removing and installing. Refer to [Body Exterior; Rep. Gr. 57; Removal and Installation](#).

#### 3 - Anti-Theft Alarm System Sensor -G578-

- Includes the Vehicle Level Sensor -G384-/ Interior Monitoring Sensor -G273-
- Inside the roof console
- Checking. Refer to [A3.8 Anti-Theft Alarm System Sensor G578, from MY 2010](#), page 356 .
- Removing and installing. Refer to [A4.9.4 Anti-Theft Alarm System Sensor G578, from MY 2010](#), page 403 .

#### 4 - Interior Monitoring Deactivation Switch -E267-

- Inside the B-pillar trim on the driver side
- Removing and installing. Refer to [M4.3.6 Monitoring and Vehicle Inclination Deactivation Switch](#), page 373 .

#### 5 - Driver Door Contact Switch -F2-

- Inside the Driver Door Central Locking Lock Unit -F220-
- Removing and installing. Refer to [Body Exterior; Rep. Gr. 57; Removal and Installation](#).

#### 6 - Rear Lid Lock Unit -F256-

- Checking. Refer to [R3.4 Rear Lid Lock Unit F256, from MY 2010](#), page 353 .
- Removing and installing. Refer to [R4.5.2 Rear Lid Lock Unit F256](#), page 377 .

#### 7 - Left Rear Door Control Module -J388-

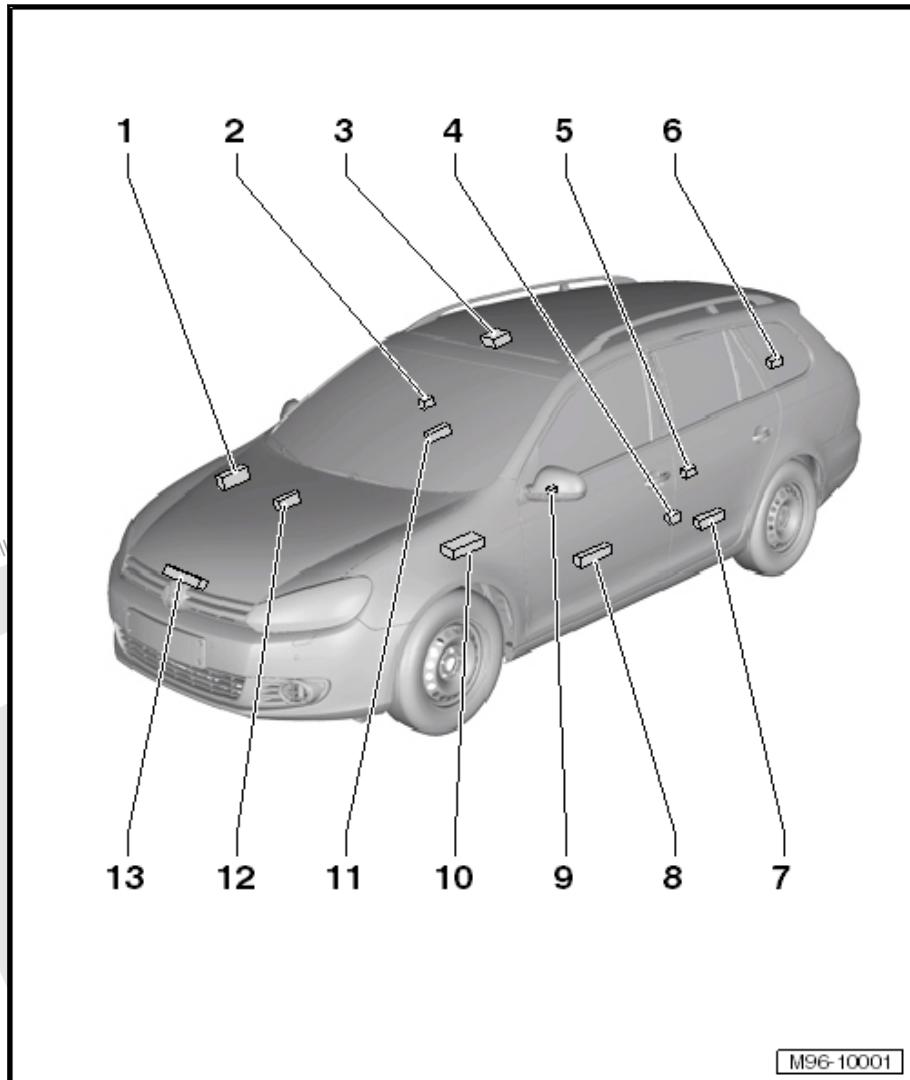
- Inside the left rear door
- Removal and Installation. Refer to [Body Exterior; Rep. Gr. 64; Removal and Installation](#)

#### 8 - Driver Door Control Module -J386-

- Inside the driver door
- Removal and Installation. Refer to [Body Exterior; Rep. Gr. 64; Removal and Installation](#)

#### 9 - Central Locking -SAFE- Indicator Lamp -K133-

- Inside the driver door trim panel





- Removing and installing. Refer to [⇒ C4.3.7 Central Locking -SAFE- Indicator Lamp K133](#) , page 374 .

#### 10 - Vehicle Electrical System Control Module -J519-

- Behind the instrument panel on the driver side on the relay panel
- Contains the Central Locking and Anti-Theft Alarm System Antenna -R47-
- Removing and installing, through MY 2009, refer to [⇒ V5.5.1 Vehicle Electrical System Control Module J519, through MY 2009](#) , page 439
- Removing and installing, from MY 2010, refer to [⇒ V5.5.2 Vehicle Electrical System Control Module J519, from MY 2010](#) , page 440

#### 11 - Right Rear Door Control Module -J389-

- Inside the right rear door
- Removal and Installation. Refer to [⇒ Body Exterior; Rep. Gr. 64; Removal and Installation](#)

#### 12 - Front Passenger Door Control Module -J387-

- Inside the front passenger door
- Removal and Installation. Refer to [⇒ Body Exterior; Rep. Gr. 64; Removal and Installation](#)

#### 13 - Engine Hood Contact Switch -F266-

- Inside the hood latch
- Removing and installing. Refer to [⇒ E4.1 Engine Hood Contact Switch F266](#) , page 357 .



### 3 Diagnosis and Testing

- ⇒ [P3.1 anel Lamps and Switches", page 350](#)
- ⇒ [D3.2 river Interior Locking ButtonE308, from MY 2010", page 352](#)
- ⇒ [D3.3 oor Lock Components", page 352](#)
- ⇒ [R3.4 ear Lid Lock UnitF256, from MY 2010", page 353](#)
- ⇒ [G3.5 arage Door Opener Control HeadE284, through MY 2009", page 353](#)
- ⇒ [i3.6 n Center Console Storage Compartment", page 354](#)
- ⇒ [K3.7 ey, from MY 2010", page 355](#)
- ⇒ [A3.8 nti-Theft Alarm System SensorG578, from MY 2010", page 356](#)

#### 3.1 Instrument Panel Lamps and Switches

- ⇒ [H3.1.1 eadlamp SwitchE1, through MY 2009", page 350](#)
- ⇒ [H3.1.2 eadlamp SwitchE1, through MY 2010", page 350](#)
- ⇒ [I3.1.3 nstrument Panel Illumination Dimmer SwitchE20, through MY 2009", page 351](#)
- ⇒ [I3.1.4 nstrument Panel Illumination Dimmer SwitchE20, from MY 2010", page 351](#)
- ⇒ [E3.1.5 emergency Flasher ButtonE229, through MY 2009", page 351](#)
- ⇒ [L3.1.6 amp, from MY 2010", page 352](#)

##### 3.1.1 Headlamp Switch -E1-, through MY 2009

###### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select [Guided Fault Finding](#).
- Use the [GO TO](#) button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Vehicle Electrical System Control Module
  - ◆ Switch button
  - ◆ E1 Headlamp switch

##### 3.1.2 Headlamp Switch -E1-, through MY 2010

###### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select [Guided Fault Finding](#).
- Use the [GO TO](#) button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body



- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 09 - Vehicle electrical system control module J519
- ◆ Electrical Components
- ◆ E1 Headlamp switch

### 3.1.3 Instrument Panel Illumination Dimmer Switch -E20-, through MY 2009

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Vehicle Electrical System Control Module
  - ◆ Switch button
  - ◆ E20 Instrument panel illumination dimmer switch

### 3.1.4 Instrument Panel Illumination Dimmer Switch -E20-, from MY 2010

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle electrical system control module J519
  - ◆ Electrical Components
  - ◆ E20 Instrument panel illumination dimmer switch

### 3.1.5 Emergency Flasher Button -E229-, through MY 2009

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Vehicle Electrical System Control Module



- ◆ Switch button
- ◆ E229 Emergency flasher button

### 3.1.6 Footwell Lamp, from MY 2010

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle electrical system control module J519
  - ◆ Electrical Components
  - ◆ L footwell lighting

### 3.2 Driver Interior Locking Button -E308-, from MY 2010

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle electrical system control module J519
  - ◆ Electrical Components
  - ◆ E308 Driver interior locking button

### 3.3 Rear Door Lock Components

⇒ [L3.3.1 Left Rear Central Locking Lock Unit F222, from MY 2010](#), page 352

⇒ [R3.3.2 Right Rear Central Locking Lock Unit F223, from MY 2010](#), page 353

#### 3.3.1 Left Rear Central Locking Lock Unit - F222-, from MY 2010

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems



- ◆ 09 - Vehicle electrical system control module J519
- ◆ Electrical Components
- ◆ F222 Left rear central locking lock unit

### 3.3.2 Right Rear Central Locking Lock Unit -F223-, from MY 2010

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle electrical system control module J519
  - ◆ Electrical Components
  - ◆ F223 Right rear central locking lock unit

### 3.4 Rear Lid Lock Unit -F256-, from MY 2010

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle electrical system control module J519
  - ◆ Electrical Components
  - ◆ F256 Rear lid lock unit

### 3.5 Garage Door Opener Control Head - E284-, through MY 2009

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Vehicle Electrical System Control Module
  - ◆ Switch button
  - ◆ E284 Garage door opener control head



### 3.6 Switches in Center Console Storage Compartment

- ⇒ [P3.6.1 Parking Aid Button E266, from MY 2010", page 354](#)
- ⇒ [P3.6.2 Parallel Parking Assistance Button E581, from MY 2010", page 354](#)
- ⇒ [A3.6.3 ASR/ESP Button E256 ", page 355](#)
- ⇒ [D3.6.4 Damping Adjustment Button E387, from MY 2010", page 355](#)

Buttons inside the center console storage compartment (depending on the vehicle equipment level):

- ◆ ASR/ESP Button -E256-
- ◆ Damping Adjustment Button -E387-
- ◆ Parallel Parking Assistance Button -E581-
- ◆ Parking Aid Button -E266-
- ◆ Tire Pressure Monitoring Display Button -E492-
- ◆ Gasoline/Natural Gas Fuel Selection Switch -E395-
- ◆ Access/Start Authorization Button -E378-



*The removing and installing of all buttons in the center console storage compartment is identical and is described for just one switch.*

#### 3.6.1 Parking Aid Button -E266-, from MY 2010

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select [Guided Fault Finding](#).
- Use the [GO TO](#) button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Body Assembly Work
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 10 - Parking aid 2 J446
  - ◆ Electrical Components
  - ◆ E266 Parking aid button

#### 3.6.2 Parallel Parking Assistance Button - E581-, from MY 2010

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select [Guided Fault Finding](#).
- Use the [GO TO](#) button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body



- ◆ Body Assembly Work
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 10 - parallel parking assistance J791
- ◆ Electrical Components
- ◆ E581 parallel parking assistance button

### 3.6.3 ASR/ESP Button -E256-

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Chassis
  - ◆ Brake system
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 03 - Anti-lock braking system J104
  - ◆ Electrical Components
  - ◆ E256 ASR/ESP Button

### 3.6.4 Damping Adjustment Button-E387-, from MY 2010

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Chassis
  - ◆ Wheel damping electronics
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 14 - Wheel damping electronics J250
  - ◆ Electrical Components
  - ◆ E387 Damping adjustment button

## 3.7 Remote Key, from MY 2010

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions



- ◆ Ignition key with radio-frequency remote control, checking

### 3.8 Anti-Theft Alarm System Sensor - G578-, from MY 2010

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Electrical Components
  - ◆ G578 Anti-theft alarm system sensor





## 4 Removal and Installation

- ⇒ [E4.1 Engine Hood Contact Switch F266 ", page 357](#)
- ⇒ [P4.2 Panel Lamps and Switches", page 357](#)
- ⇒ [a4.3 and Switches in Front Doors and B-Pillar", page 367](#)
- ⇒ [D4.4 Door Lamps and Switches", page 375](#)
- ⇒ [a4.6 and Switches in Roof Trim Panel", page 378](#)
- ⇒ [C4.7 Onsole Lamps and Switches", page 393](#)
- ⇒ [4.8 , page 397](#)
- ⇒ [A4.9 Alarm System", page 401](#)

### 4.1 Engine Hood Contact Switch -F266-

Front Hood Switch -F266- is integrated in lid lock and cannot be replaced separately.

If there is a malfunction, the entire hood latch must be replaced. Refer to ⇒ Body Exterior; Rep. Gr. 55; Removal and Installation.

### 4.2 Instrument Panel Lamps and Switches

- ⇒ [L4.2.1 Light Switch E1, Removal and Installation", page 357](#)
- ⇒ [G4.2.2 glove Compartment Lamp W6 ", page 359](#)
- ⇒ [G4.2.3 glove Compartment Lamp Switch E26 ", page 360](#)
- ⇒ [I4.2.4 Instrument Panel and Switch Illumination Dimmer Switch E20 ", page 361](#)
- ⇒ [P4.2.5 Passenger Airbag Indicator Lamp K145 ", page 362](#)
- ⇒ [E4.2.6 Emergency Flasher Button E229 ", page 363](#)
- ⇒ [L4.2.7 Lamps", page 364](#)
- ⇒ [F4.2.8 Front Passenger Airbag Deactivation Key Switch E224 ", page 366](#)

#### 4.2.1 Light Switch -E1-, Removal and Installation

The following components are integrated with Light Switch -E1-:

- ◆ Fog Lamp Switch -E7-
- ◆ Rear Fog Lamp Switch -E18-
- ◆ Headlamp Switch Illumination Bulb -L9-



##### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

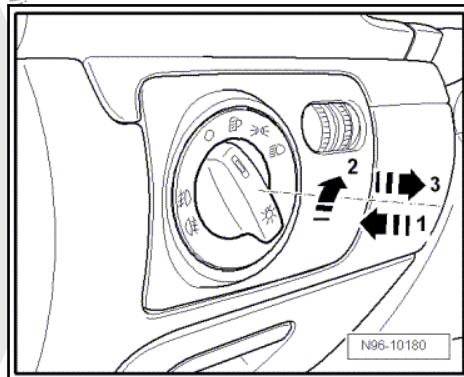
##### Removing

The Headlamp Switch -E1- can be checked with the Vehicle Diagnostic Tester before removing (through MY 2009), refer to

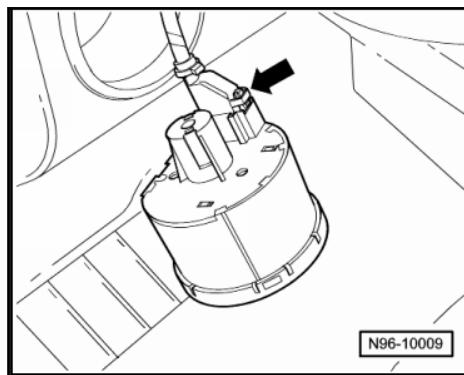


➤ H3.1.1 eadlamp SwitchE1, through MY 2009", page 350 and  
(from MY 2010), refer to ➤ H3.1.2 eadlamp SwitchE1, through  
MY 2010", page 350 .

- Turn the Headlamp Switch -E1- to "0".
- Push the Headlamp Switch -E1- handle in -arrow 1- and turn it a little to the right -arrow 2-.
- Hold the rotary handle in this position and remove the Headlamp Switch -E1- from the instrument panel by the handle -arrow 3-.

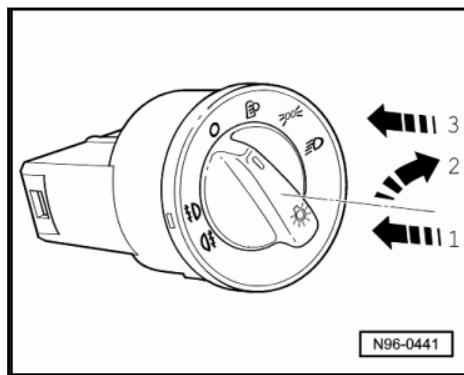


- Disconnect the connector -arrow-.



## Installing

- Connect electrical connector.
- Hold Headlamp Switch -E1- firmly and press in rotary handle of Headlamp Switch -E1- -arrow 1- and turn slightly toward right -arrow 2-.



- Hold the rotary handle in this position and insert the Headlamp Switch -E1- into the instrument panel -arrow 3-.



- Turn the rotary switch to the “0” position, release it and engage the Headlamp Switch -E1-.

## 4.2.2 Glove Compartment Lamp -W6-

**Special tools and workshop equipment required**

- ◆ Trim Removal Wedge -VAS 3409-

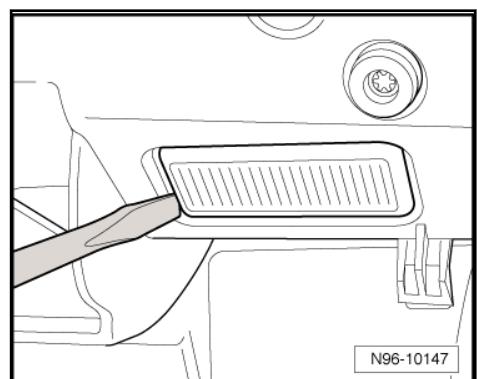


### Caution

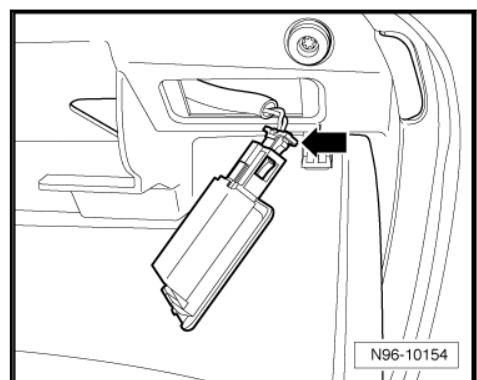
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

### Removing

- Open the glove compartment.
- Carefully pry out the Glove Compartment Lamp -W6- using the Trim Removal Wedge -VAS 3409-.



- Disconnect the connector -arrow-.

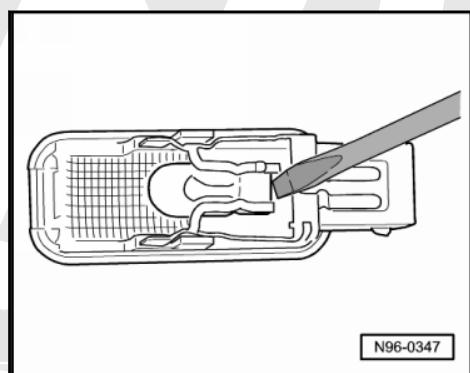
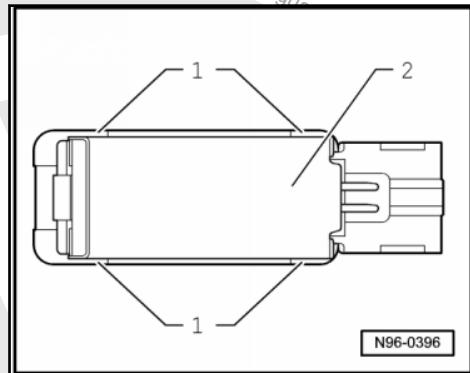


### Replacing the bulb

- Open the tabs -1- and remove the heat shield -2- from the lens on the Glove Compartment Lamp -W6-.



- Carefully pry the bulb out of the socket.



Bulb: glass base bulb 12 V/5 W



#### Caution

- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***

#### Installing

Install in reverse order of removal. Note the following:

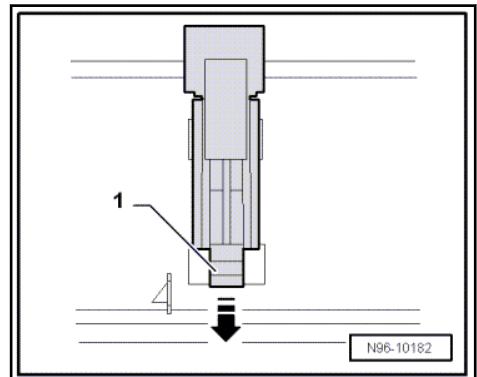
- Make sure the Glove Compartment Lamp Switch -E26- works correctly. The Glove Compartment Lamp Switch -W6- must not light up when the cover is closed.

#### 4.2.3 Glove Compartment Lamp Switch - E26-

The Glove Compartment Lamp Switch -E26- is located on the back of the glove compartment.

#### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Open the tab -1- and remove the Glove Compartment Lamp Switch -E26- from the guides -arrow-.



### Installing

Install in reverse order of removal.

#### 4.2.4 Instrument Panel and Switch Illumination Dimmer Switch -E20-



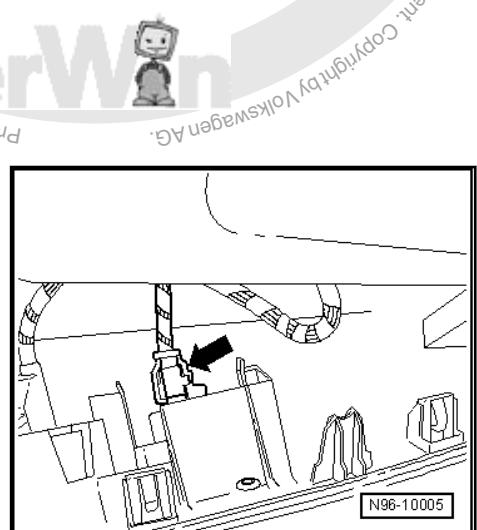
##### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

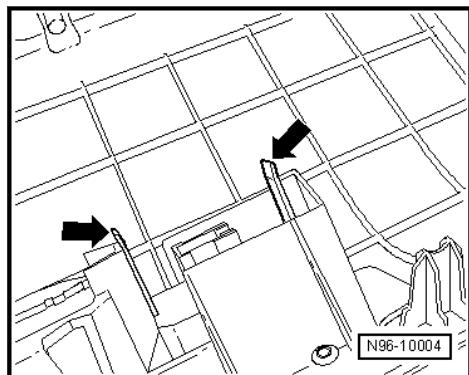
### Removing

The instrument panel illumination dimmer switch -E20- can be checked with the Vehicle Diagnostic Tester before removing (through MY 2009), refer to [⇒ I3.1.3 Instrument Panel Illumination Dimmer Switch E20, through MY 2009](#), page 351 and (from MY 2010), refer to [⇒ I3.1.4 Instrument Panel Illumination Dimmer Switch E20, from MY 2010](#), page 351 .

- Remove the Light Switch -E1-. Refer to [⇒ L4.2.1 Light Switch E1, Removal and Installation](#), page 357
- Remove the trim on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Disconnect the connector -arrow-.



- Open the tabs -arrows- and remove the Instrument Panel and Switch Illumination Dimmer Switch -E20-.



### Installing

Install in reverse order of removal.

## 4.2.5 Passenger Airbag Indicator Lamp - K145-



### WARNING

*Follow the safety precautions when working on the airbag.  
Refer to ⇒ Body Interior; Rep. Gr. 69; General Information.*

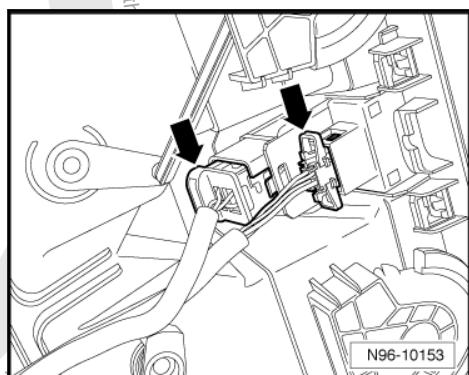


### Caution

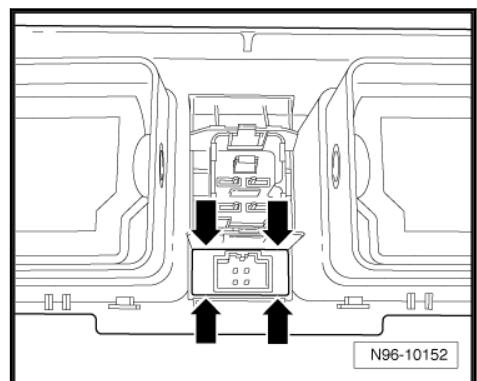
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

### Removing

- Remove the center vent. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 80; Removal and Installation.
- Disconnect the connectors -arrows-.



- Release the tabs -arrows- and remove the Front Passenger Airbag Disabled Indicator Lamp -K145-.



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### Installing

Install in reverse order of removal.

#### 4.2.6 Emergency Flasher Button -E229-



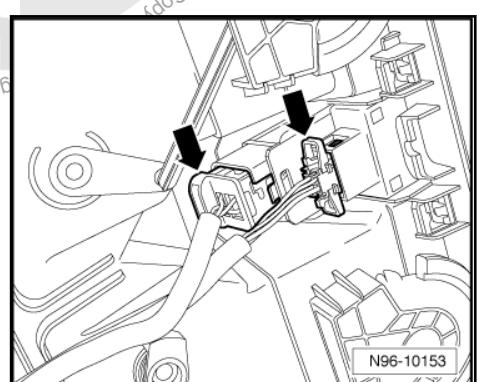
##### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

### Removing

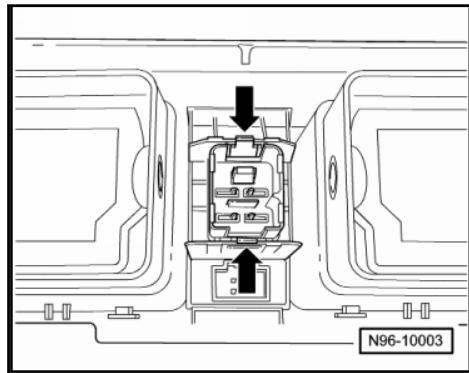
The emergency flasher button -E229- can be checked before it is removed with the Vehicle Diagnostic Tester (through MY 2009), refer to [⇒ E3.1.5 Emergency Flasher Button -E229, through MY 2009](#), page 351 .

- Remove the center vent. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 80; Removal and Installation.
- Disconnect the connectors -arrows-.



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- Release the tabs -arrows- and remove the Emergency Flasher Button -E229-.



## Installing

Install in reverse order of removal.

### 4.2.7 Footwell Lamps

#### Special tools and workshop equipment required

- ◆ Trim Removal Wedge -VAS 3409-

The Left Footwell Light -W9-/Right Footwell Light -W10- are removed and installed the same way so the procedure is only described for one of them.



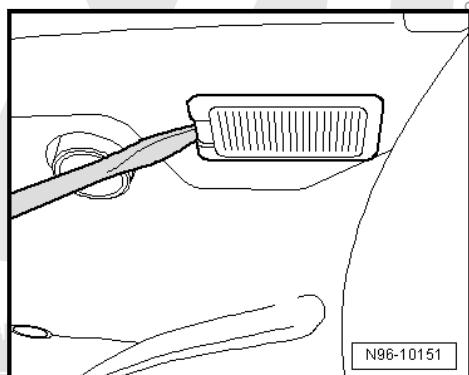
#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

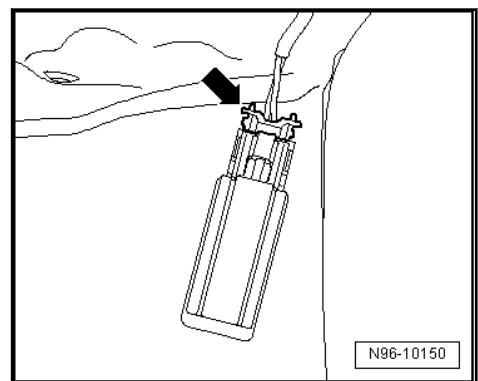
## Removing

The Left Footwell Lamp -W9- can be checked before it is removed with the Vehicle Diagnostic Tester (from MY 2010), refer to [⇒ L3.1.6 amp, from MY 2010](#), page 352 .

- Pry the Left Footwell Lamp -W9- out of the trim panel under the instrument panel using Trim Removal Wedge -VAS 3409-.

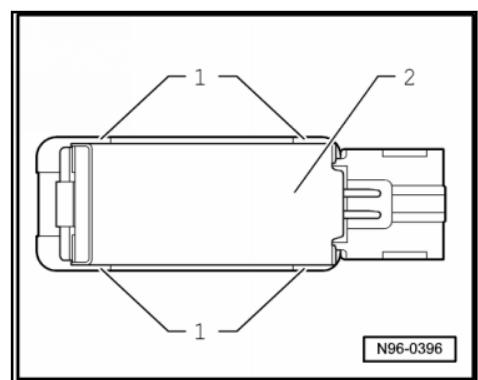


- Disconnect the connector -arrow-.

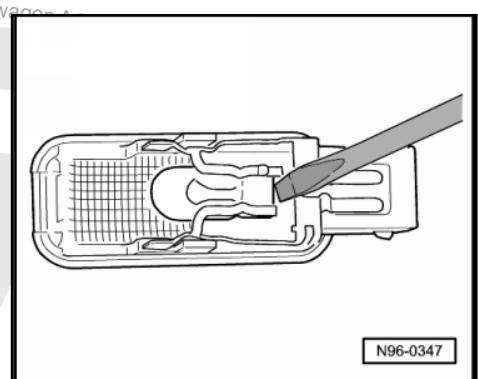


### Replacing the bulb

- Open the tabs -1- and remove the heat shield -2- from the lens on the Left Footwell Lamp -W9-.



- Carefully pry the bulb out of the socket.



Bulb: glass base bulb 12 V/5 W



#### Caution

- Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.

### Installing

Install in reverse order of removal.



erWin



#### 4.2.8 Front Passenger Airbag Deactivation Key Switch -E224-

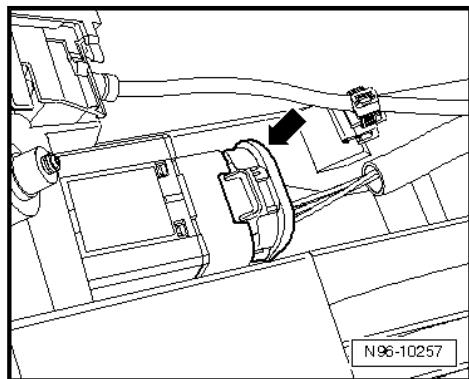


##### WARNING

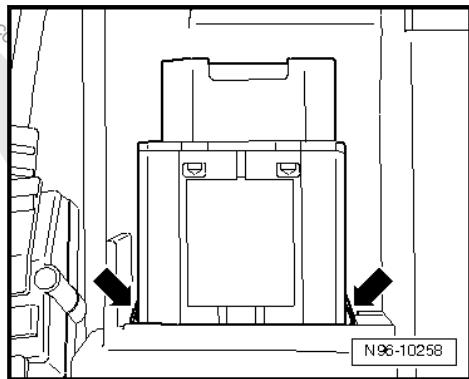
*Follow the safety precautions when working on the airbag.  
Refer to ⇒ Body Interior; Rep. Gr. 69; General Information.*

##### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Disconnect the connector -arrow-.



- Open the tabs -arrows- and remove the Front Passenger Airbag Deactivation Key Switch -E224-.



##### Installing

Install in reverse order of removal.



## 4.3 Lights and Switches in Front Doors and B-Pillar

⇒ [F4.3.1 Front Passenger Door Window Regulator Switch-E107](#) ", page 367

⇒ [A4.3.2 Adjustment Switch Module, Driver Side](#)", page 368

⇒ [D4.3.3 Driver Interior Locking Button-E308](#) ", page 369

⇒ [R4.3.4 Regulator Switch Module, Driver Side](#)", page 370

⇒ [F4.3.5 Fuel Filler/Rear Lid Remote Unlocking Button-E463](#) ", page 372

⇒ [M4.3.6 Monitoring and Vehicle Inclination Deactivation Switch](#)", page 373

⇒ [C4.3.7 Central Locking -SAFE- Indicator Lamp-K133](#) ", page 374

### 4.3.1 Front Passenger Door Window Regulator Switch -E107-



#### Note

The Push Button Illumination -E107- is integrated in the Passenger Door Window Regulator Switch -L76- and cannot be replaced separately.

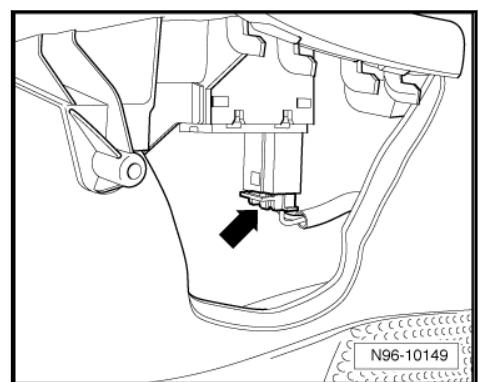


#### Caution

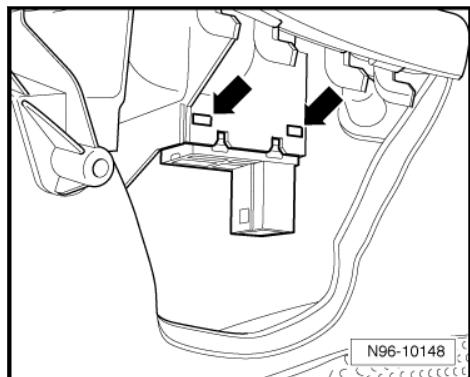
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

#### Removing

- Remove the upper section of the grip recess from the pull handle. Refer to ⇒ Body Interior; Rep. Gr. 70; Removal and Installation.
- Disconnect the connector -arrow-.



- Open the four tabs -arrows- and remove the Front Passenger Door Window Regulator Switch -E107-.



## Installing

Install in reverse order of removal.

- Make sure the four tabs click into place when installing.

### 4.3.2 Mirror Adjustment Switch Module, Driver Side

**Driver side mirror adjustment switch module (depends on equipment)**

- ◆ Mirror Adjustment Switch -E43-
- ◆ Mirror Selector Switch -E48-
- ◆ Outside Mirror Heating Switch -E231-
- ◆ Mirror Folding Switch -E263-
- ◆ Mirror Adjustment Switch Illumination -L78-

The components listed above cannot be replaced separately.

- Replace the driver side mirror adjustment switch module if it is faulty.

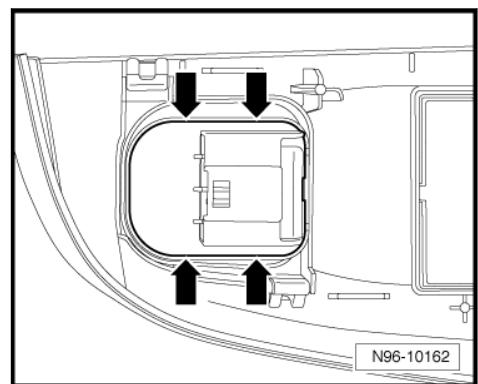


#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

## Removing

- Remove the window regulator switch module on the driver side. Refer to [R4.3.4 Regulator/Switch Module, Driver Side](#), page 370 .
- Unclip the frame for the switches from the trim.
- Open the tabs -arrows- and remove the switch module.



N96-10162

### Installing

Install in reverse order of removal.

### 4.3.3 Driver Interior Locking Button -E308-



#### Note

The Push Button Illumination -E308- is integrated in the Driver Interior Locking Button -L76- and cannot be replaced separately.



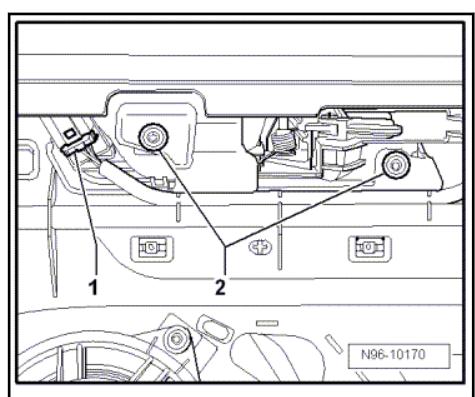
#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

### Removing

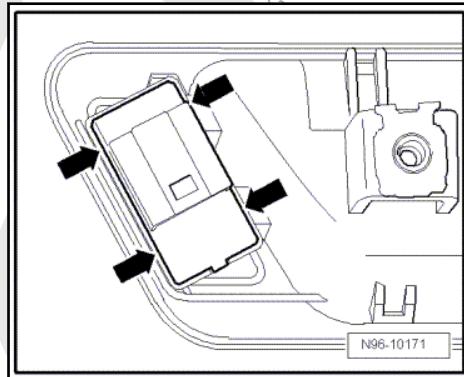
The Driver Interior Locking Button -E308- can be checked before it is removed with the Vehicle Diagnostic Tester (from MY 2010), refer to [D3.2 Driver Interior Locking Button E308, from MY 2010](#), page 352 .

- Remove the door trim panel. Refer to [Body Interior; Rep. Gr. 70; Removal and Installation](#).
- Disconnect the connector -1- and remove the screws -2-.





- Remove the door opener and Driver Interior Locking Button -E308- from the door trim panel.
- Release the tabs -arrows- and remove the Driver Interior Locking Button -E308- from the frame.



### Installing

Install in reverse order of removal.

### Tightening Specifications

- ◆ Screws: 1.5 Nm

## 4.3.4 Window Regulator Switch Module, Driver Side

### Special tools and workshop equipment required

- ◆ Trim Removal Wedge -VAS 3409-

### Window regulator switch module - driver side, 4-door

- ◆ Left Front Window Regulator Switch -E40-
- ◆ Driver's Left Rear Window Regulator Switch -E53-
- ◆ Driver's Right Rear Window Regulator Switch -E55-
- ◆ Driver Right Front Window Regulator Switch -E81-
- ◆ Child Safety Button -E318-
- ◆ Push Button Illumination -L76-

### Window regulator switch module - driver side, 2-door

- ◆ Left Front Window Regulator Switch -E40-
- ◆ Driver Right Front Window Regulator Switch -E81-
- ◆ Push Button Illumination -L76-

The components listed above cannot be replaced separately. If faulty, the switch module must be replaced.



#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

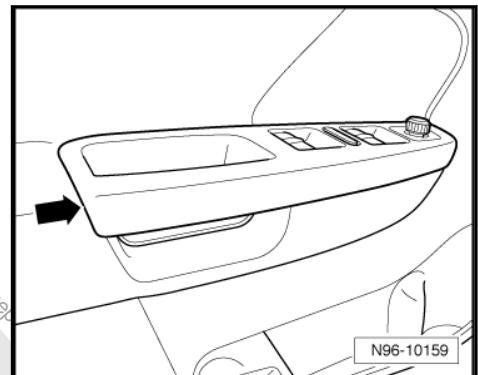


### Caution

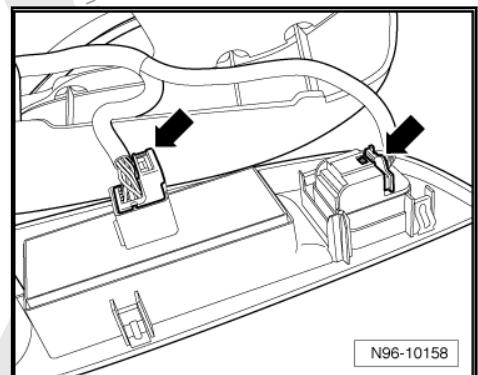
*Do NOT try to press or lift the front part of the installation frame (in the switch area) from the door trim. This damages the switch. Spread or raise the frame only from behind, as indicated by the -arrow-.*

### Removing

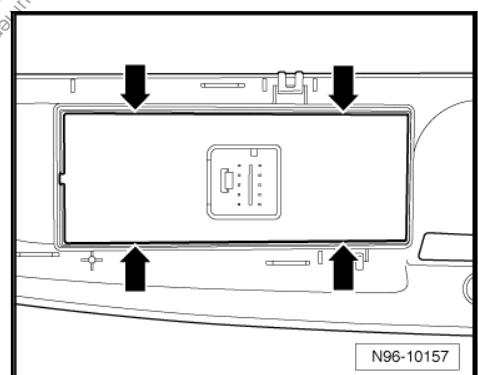
- Carefully pry the frame out of the door trim panel -arrow- using a Trim Removal Wedge -VAS 3409-.



- Disconnect the connectors -arrows-.



- Open the tabs -arrows- and remove the switch module.



### Installing

Install in reverse order of removal.



#### 4.3.5 Fuel Filler/Rear Lid Remote Unlocking Button-E463-

The Fuel Filler/Rear Lid Remote Unlocking Button -E463- is located in the driver door.



##### Note

*The Push Button Illumination -E463- is integrated in the Fuel Filler/Rear Lid Remote Unlocking Button -L76-, which cannot be replaced separately.*

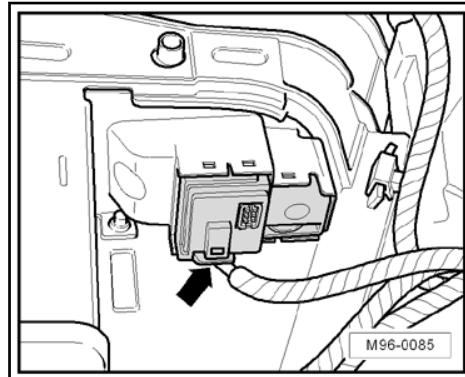


##### Caution

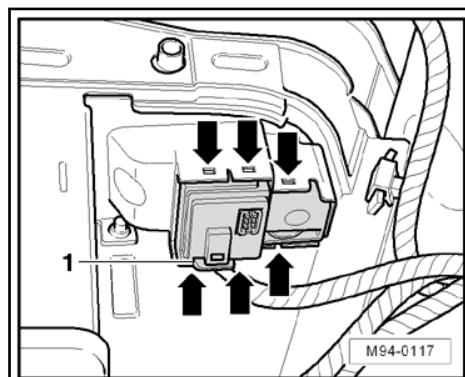
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

##### Removing

- Remove the door trim panel. Refer to ⇒ Body Interior; Rep. Gr. 70; Removal and Installation.
- Disconnect the connector -arrow-.



- Open the tabs -arrows- and remove the Fuel Filler/Rear Lid Remote Unlocking Button -E463- from the door panel.





## Installing

Install in reverse order of removal.

### 4.3.6 Interior Monitoring and Vehicle Inclination Deactivation Switch

#### Special tools and workshop equipment required

- ◆ Trim Removal Wedge -VAS 3409-

The Interior Monitoring Deactivation Switch -E267-/Deactivate Vehicle Inclination Sensor Button -E360- are installed together in one unit in the lower B-pillar trim.

As of MY 07, the shape of the switch changed.

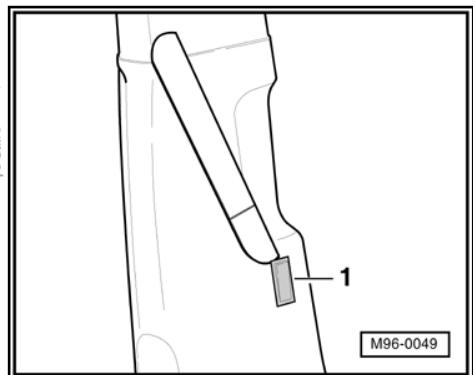


#### Caution

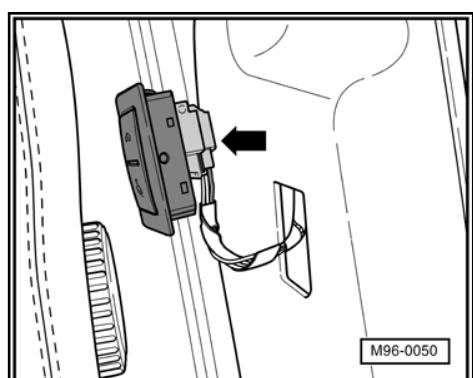
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

## Removing

- Unclip the switch -1- from the trim using the Trim Removal Wedge -VAS 3409-.



Disconnect the connector -arrow-.



## Installing

Install in reverse order of removal.



#### 4.3.7 Central Locking -SAFE- Indicator Lamp -K133-

The Central Locking -SAFE- Indicator Lamp -K133- is installed near the exterior mirror in the driver door trim panel.

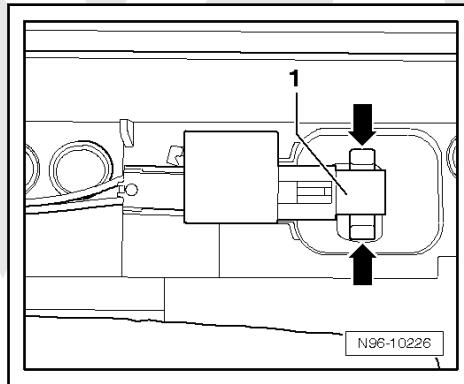


##### Caution

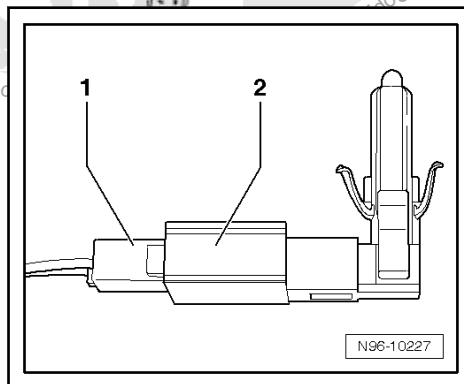
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

##### Removing

- Remove the door trim panel. Refer to ⇒ Body Interior; Rep. Gr. 70; Removal and Installation.
- Press the tabs -arrows- and remove the Central Locking -Safe- Indicator Lamp -K133- -1- from the door trim panel.



- Disconnect the connector -1- an Central Locking -SAFE- Indicator Lamp -K133- -2-.



##### Installing

Install in reverse order of removal. Note the following:

- Make sure the Central Locking -SAFE- Indicator Lamp - K133- engages in the door trim securely.



## 4.4 Rear Door Lamps and Switches

⇒ D4.4.1 oor Window Regulator Switch", page 375

### 4.4.1 Rear Door Window Regulator Switch

The Left Rear Window Switch (In LR Door) -E52- and Right Rear Window Switch (In RR Door) -E54- are removed and installed the same way so the procedure is only described for one of them.

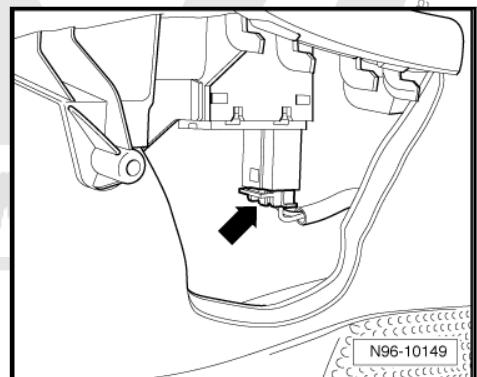


#### Caution

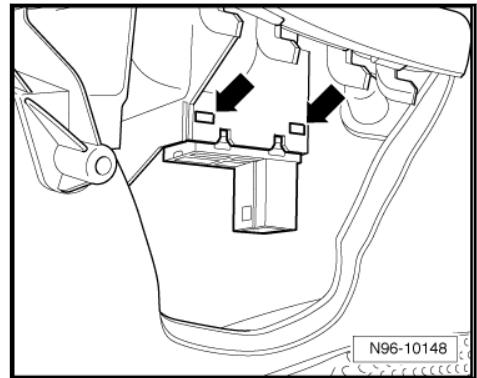
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

#### Removing

- Remove the upper section of the grip recess from the pull handle. Refer to ⇒ Body Interior; Rep. Gr. 70; Removal and Installation.
- Disconnect the connector -arrow-.



- Open the four tabs -arrows- and remove the Left Rear Window Switch (In LR Door) -E52-.



#### Installing

Install in reverse order of removal.

- Make sure the four tabs click into place when installing.



## 4.5 Luggage Compartment Lamps and Switches

⇒ [L4.5.1 luggage Compartment Lamp W3 ", page 376](#)

⇒ [R4.5.2 rear Lid Lock Unit F256 ", page 377](#)

### 4.5.1 Luggage Compartment Lamp -W3-

Special tools and workshop equipment required

- ◆ Trim Removal Wedge -VAS 3409-

The Luggage Compartment Light -W3- is located in the luggage compartment trim on the right side.

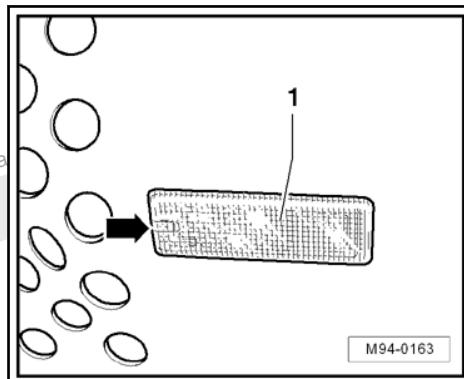


#### Caution

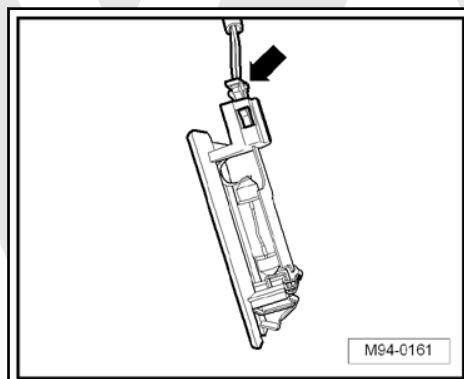
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

#### Removing

- Pry the Luggage Compartment Lamp -W3- -1- out of the luggage compartment trim panel -arrow- using the Trim Removal Wedge -VAS 3409-.



- Disconnect the connector -arrow-.

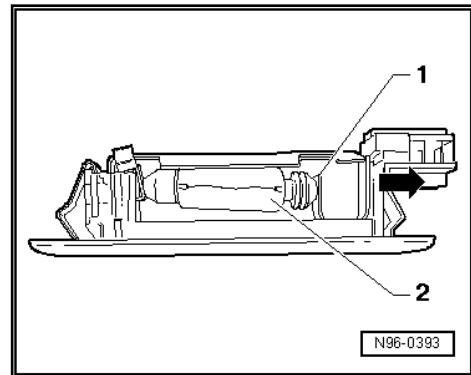




### Replacing the bulb

- Press the contact plate -1- on the Luggage Compartment Lamp -W3- toward the outside and remove the bulb -2- from the socket.

Tubular bulb 12 V/10 W



N96-0393



#### Caution

- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***

### Installing

Install in reverse order of removal.

#### 4.5.2 Rear Lid Lock Unit -F256-

Rear Lid Lock Unit -F256- is integrated in rear lid lock and cannot be replaced separately.

- Replace the rear lid lock if it is malfunctioning. Refer to  
⇒ Body Exterior; Rep. Gr. 55; Removal and Installation.



## 4.6 Lamps and Switches in Roof Trim Panel

⇒ [V4.6.1 vanity Mirror", page 378](#)

⇒ [G4.6.2 Garage Door Opener Control HeadE284 ", page 380](#)

Vehicles without Sunroof

⇒ [F4.6.3 Front Interior LampW1 ", page 380](#)

⇒ [F4.6.4 Front Interior LampW1 Bulb", page 381](#)

⇒ [R4.6.5 Reading Lamps", page 383](#)

Vehicles with Sunroof

⇒ [F4.6.6 Front Interior LampW1 ", page 384](#)

⇒ [S4.6.7 Sunroof SwitchE8 ", page 385](#)

⇒ [F4.6.8 Front Interior LampW1 Bulb", page 386](#)

⇒ [R4.6.9 Reading Lamps", page 387](#)

Vehicles without Anti-Theft Alarm System

⇒ [R4.6.10 Rear Interior LampW43 ", page 388](#)

⇒ [R4.6.11 Rear Interior LampW43 Bulb", page 389](#)

Vehicles with Anti-Theft Alarm System

⇒ [R4.6.12 Rear Interior LampW43 ", page 390](#)

⇒ [R4.6.13 Rear Interior LampW43 Bulb", page 391](#)

### 4.6.1 Illuminated Vanity Mirror

Special tools and workshop equipment required

- ◆ Trim Removal Wedge -VAS 3409-

The Front Passenger Illuminated Vanity Mirror Light -W14-/Driver Illuminated Vanity Mirror Light -W20- are removed and installed the same way so the procedure is only described for one of them.

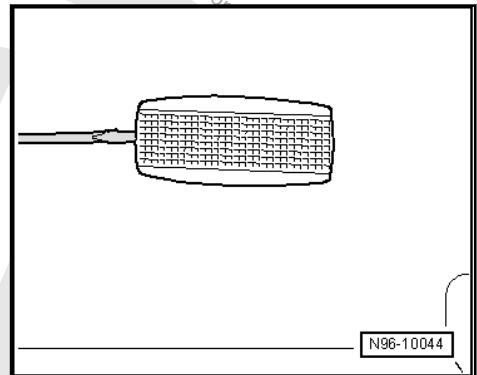


#### Caution

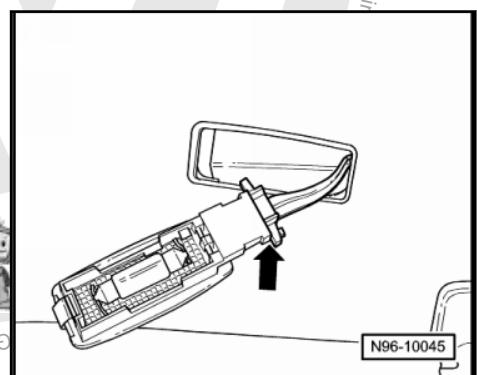
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

#### Removing

- Carefully pry the Front Passenger Vanity Mirror Lamp -W14- from the roof trim panel using the Trim Removal Wedge -VAS 3409-.

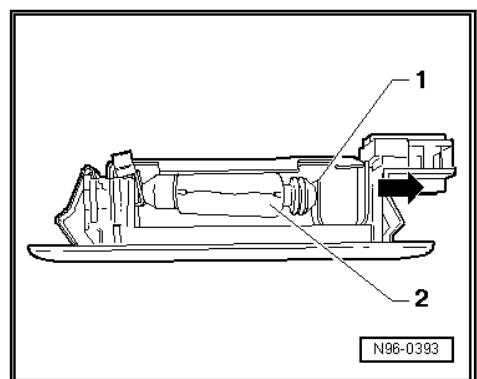


- Disconnect the connector -arrow-.



### Replacing the bulb

- Press the contact plate -1- in the direction of the -arrow- and remove the tubular bulb -2-.



Tubular bulb 12 V/5 W



#### Caution

- ◆ *Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.*

### Installing

Install in reverse order of removal.



## 4.6.2 Garage Door Opener Control Head - E284-

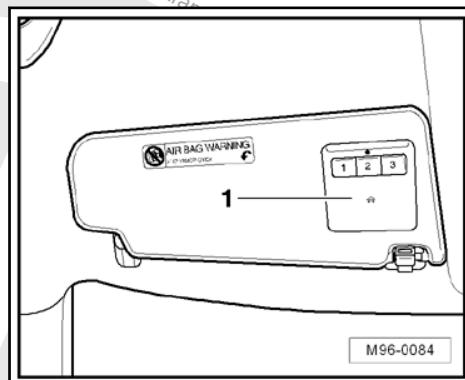
Garage Door Opener Control Head -E284- is installed in sun visor on driver side.

Sun visor and Garage Door Opener Control Head -E284- can only be replaced together.

### Removing

The Garage Door Opener Control Head -E284- can be checked before it is removed with the Vehicle Diagnostic Tester (through MY 2009), refer to [G3.5 Garage Door Opener Control Head E284, through MY 2009](#), page 353 .

- Remove the sun visor on the driver side and the Garage Door Opener Control Head -E284- -1-. Refer to [Body Interior; Rep. Gr. 68; Removal and Installation](#).



### Installing

Install in reverse order of removal.

## 4.6.3 Front Interior Lamp -W1-

### Special tools and workshop equipment required

- ◆ Trim Removal Wedge -VAS 3409-



#### Caution

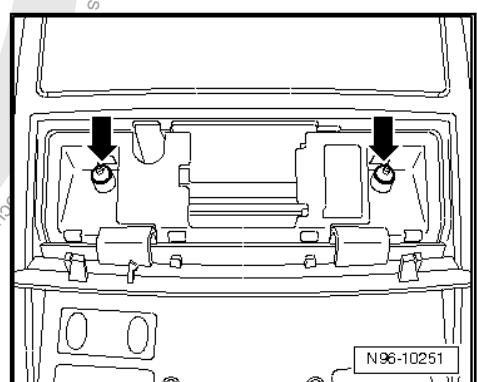
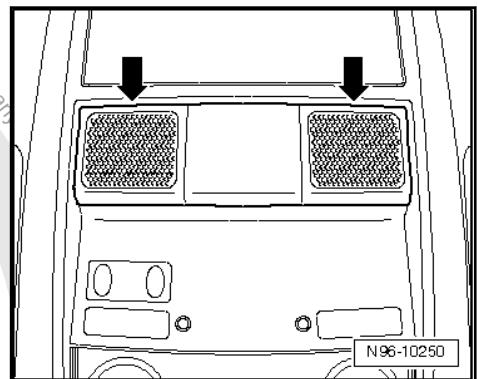
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

### Removing

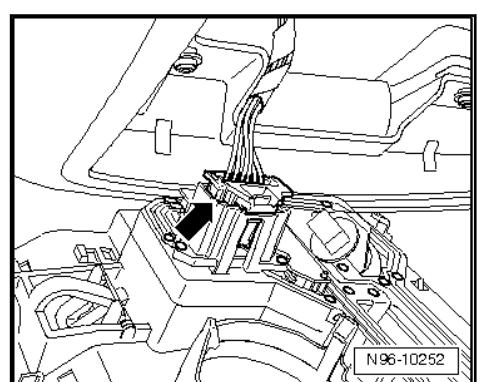
- Carefully remove the Front Interior Lamp -VAS 3409- trim using the Trim Removal Wedge -W1- -arrows-.



- Remove the bolts -arrows-.



- Remove the Front Interior Lamp -W1- from the bracket in the headliner.
- Disconnect the connectors -arrows-.



### Installing

Install in reverse order of removal.

### Tightening Specifications

- ◆ Screws: 2 Nm

## 4.6.4 Front Interior Lamp -W1- Bulb

### Special tools and workshop equipment required

- ◆ Trim Removal Wedge -VAS 3409-

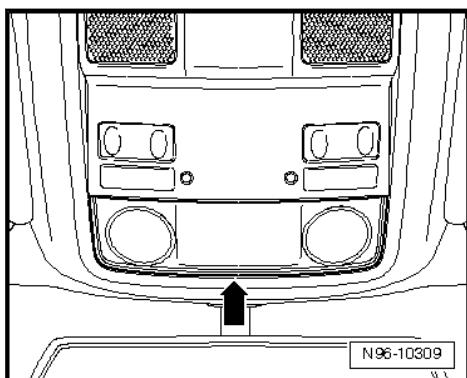


**Caution**

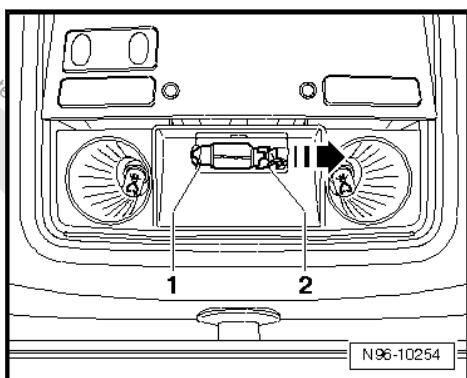
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

**Removing**

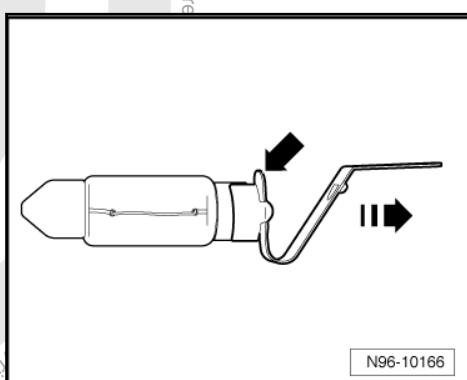
- Carefully remove the Front Interior Lamp -VAS 3409- lens using the Trim Removal Wedge -W1- -arrow-.



- Push the contact plate -1- on the Front Interior Lamp -W1- to the side -arrow- and remove the bulb -2- with the contact plate from the Front Interior Lamp -W1-.



- Remove the contact plate -arrow- from the faulty bulb.





Tubular bulb 12 V/10 W



**Caution**

- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***

**Installing**

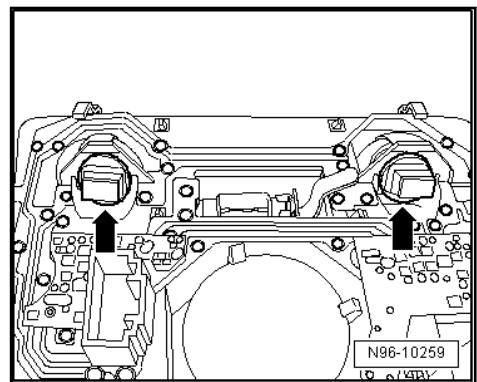
Install in reverse order of removal.

### 4.6.5 Center Reading Lamps

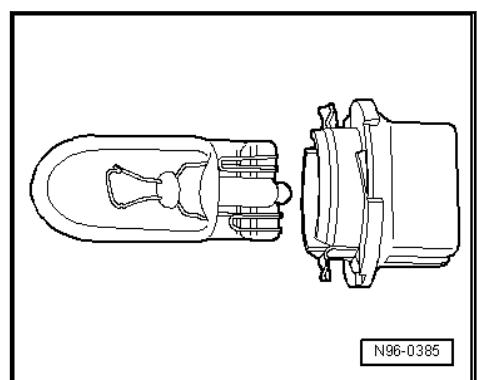
The Left Center Reading Light -W39-/Right Center Reading Light -W40- are removed and installed the same way so the procedure is only described for one of them.

**Removing**

- Removing the Front Interior Lamp -W1-. Refer to [F4.6.3 Front Interior Lamp W1](#), page 380 .
- Turn the Left Center Reading Lamp -W39- bulb socket -arrows- 90 degrees to the left.



- Remove the bulb socket and bulb from the Left Center Reading Lamp -W39-.
- Carefully pull the bulb out of the socket.



Bulb: glass base bulb 12 V/5 W



#### Caution

- ◆ **Do not touch the glass of the bulb during installation.**  
*Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.*

#### Installing

Install in reverse order of removal.

### 4.6.6 Front Interior Lamp -W1-

Special tools and workshop equipment required

- ◆ Trim Removal Wedge -VAS 3409-

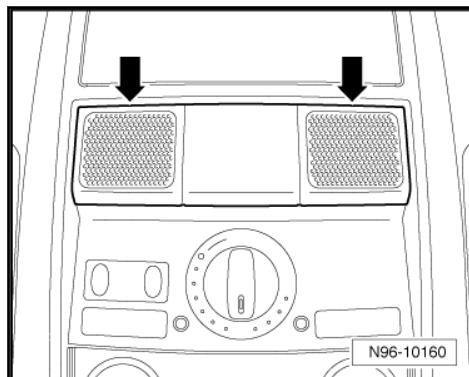


#### Caution

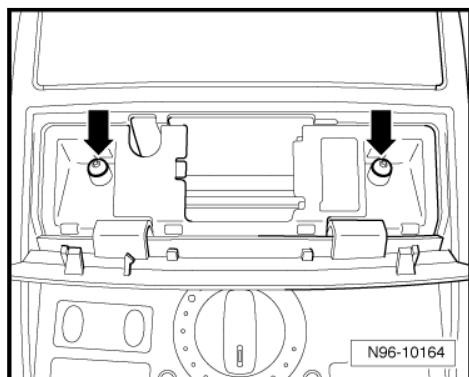
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409, screwdriver) will be positioned using commercially available adhesive tape.

#### Removing

- Carefully remove the Front Interior Lamp -VAS 3409-trim using the Trim Removal Wedge -W1- -arrows-.

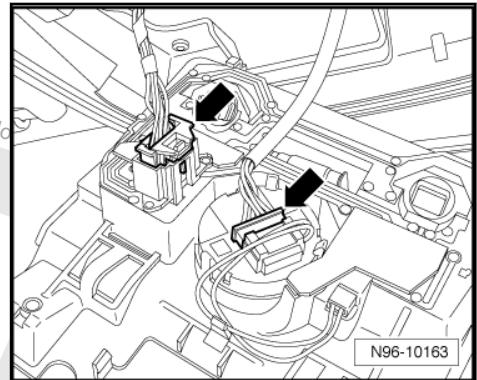


- Remove the bolts -arrows-.





- Remove the Front Interior Lamp -W1- from the bracket in the headliner.
- Disconnect the connectors -arrows-.



### Installing

Install in reverse order of removal.

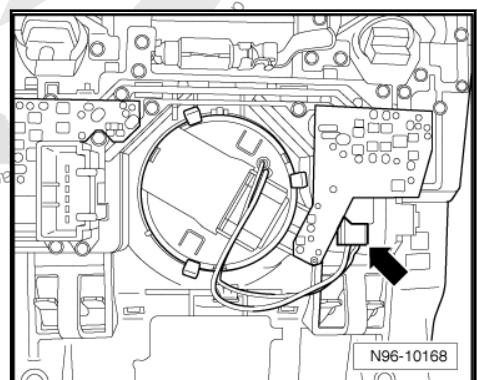
### Tightening Specifications

- ◆ Screws: 2 Nm

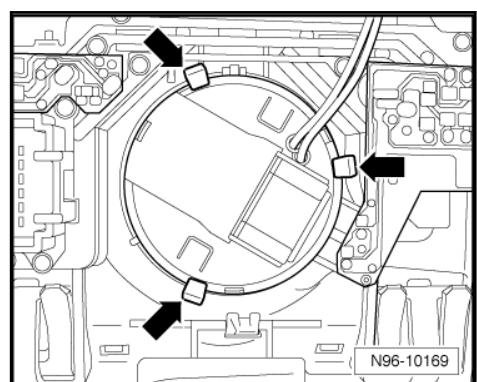
## 4.6.7 Sunroof Switch -E8-

### Removing

- Removing the Front Interior Lamp -W1-. Refer to [F4.6.6 Front Interior Lamp W1](#), page 384 .
- Disconnect the connector -arrow-.



- Open the tabs -arrows- and remove the Sunroof Switch -E8-.



### Installing

Install in reverse order of removal.



## 4.6.8 Front Interior Lamp -W1- Bulb

### Special tools and workshop equipment required

- ◆ Trim Removal Wedge -VAS 3409-

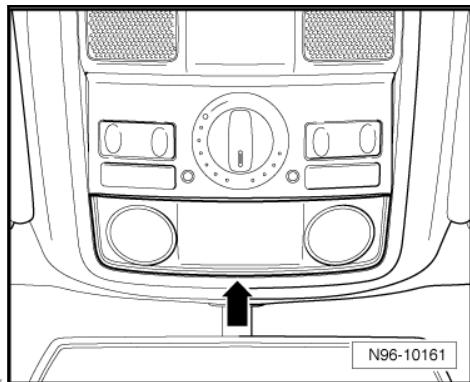


#### Caution

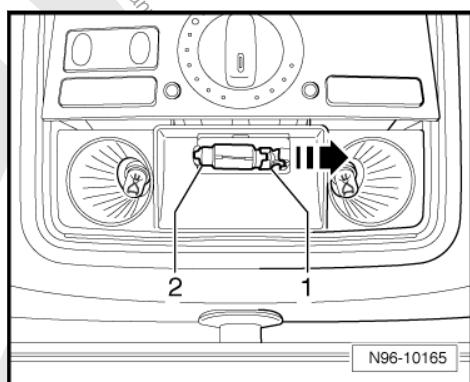
- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

### Removing

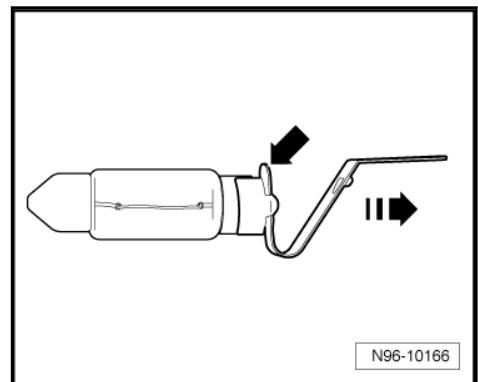
- Carefully remove the Front Interior Lamp -VAS 3409- lens using the Trim Removal Wedge -W1- -arrow-.



- Push the contact plate -1- on the Front Interior Lamp -W1- to the side -arrow- and remove the bulb -2- with the contact plate from the Front Interior Lamp -W1-.



- Remove the contact plate -arrow- from the faulty bulb.



N96-10166

Tubular bulb 12 V/10 W



#### Caution

- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***

#### Installing

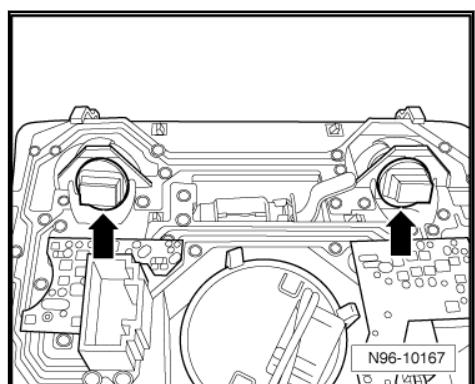
Install in reverse order of removal.

### 4.6.9 Center Reading Lamps

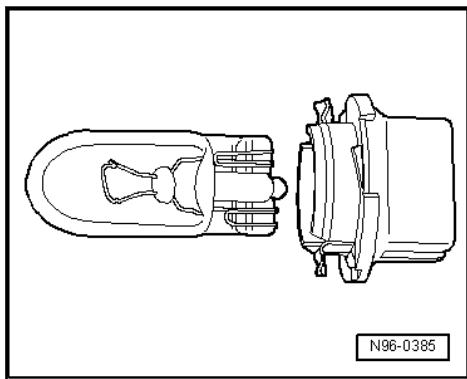
The Left Center Reading Light -W39-/Right Center Reading Light -W40- are removed and installed the same way so the procedure is only described for one of them.

#### Removing

- Removing the Front Interior Lamp -W1-. Refer to [F4.6.3 front Interior Lamp W1](#), page 380 .
- Turn the Left Center Reading Lamp -W39- bulb socket -arrows- 90 degrees to the left.



- Remove the bulb socket and the bulb from the Left Center Reading Lamp -W39-.
- Carefully pull the bulb out of the socket.



Bulb: glass base bulb 12 V/5 W



#### Caution

- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***

#### Installing

Install in reverse order of removal.

#### 4.6.10 Rear Interior Lamp -W43-

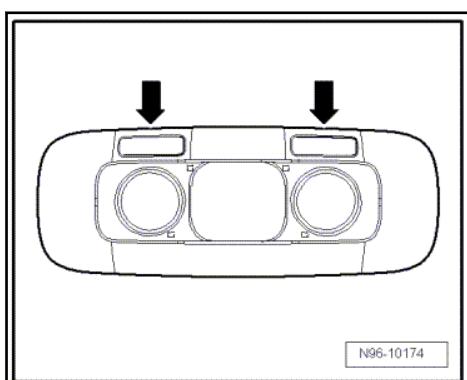


#### Caution

- ◆ ***Turn off the ignition and all electrical equipment.***
- ◆ ***Remove the key.***
- ◆ ***When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.***

#### Removing

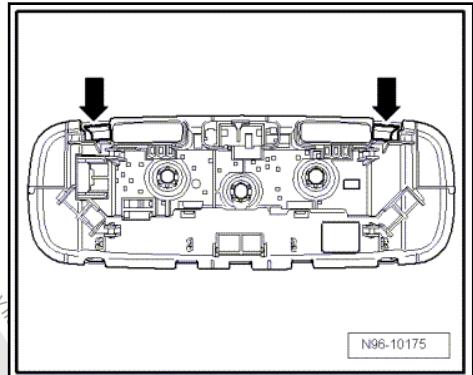
- Release the tabs -arrows- and remove the trim and lens from the Rear Interior Lamp -W43-.



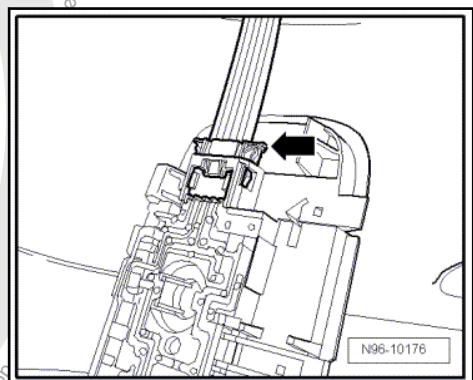
- Release the tabs -arrows- and remove the Rear Interior Lamp -W43- from the headliner.



- Disconnect the connector -arrow-.



N96-10175



N96-10176

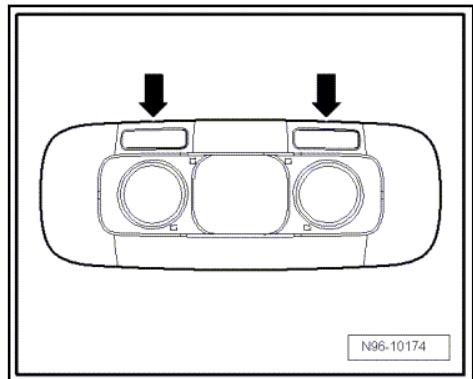
### Installing

Install in reverse order of removal.

## 4.6.11 Rear Interior Lamp -W43- Bulb

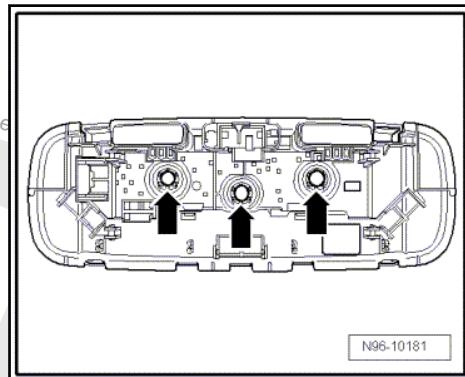
### Removing

- Release the tabs -arrows- and remove the trim and lens from the Rear Interior Lamp -W43-.



N96-10174

- Remove the bulb from the bulb socket -arrows-.



N96-10181

Bulb: glass base bulb 12 V/5 W



#### Caution

- ◆ ***Do not touch the glass of the bulb during installation. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.***

#### Installing

Install in reverse order of removal.

### 4.6.12 Rear Interior Lamp -W43-



#### Note

- ◆ ***If the Rear Interior Lamp -W43- is removed, the anti-theft alarm system must be deactivated [⇒ A4.9.1 Alarm System, Activating/Deactivating](#), page 401 (through MY 2009).***
- ◆ ***The Anti-Theft Alarm System Ultrasound Sensor -G209- must not be moved from its pre-set position (through MY 2009).***

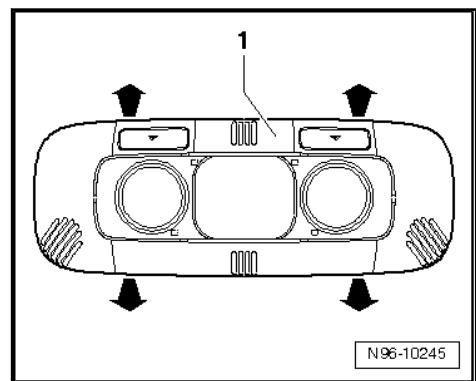


#### Caution

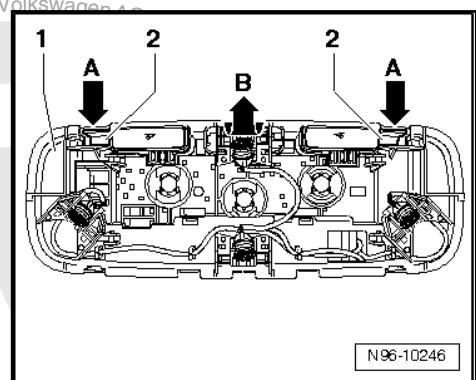
- ◆ ***Turn off the ignition and all electrical equipment.***
- ◆ ***Remove the key.***
- ◆ ***When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.***

#### Removing

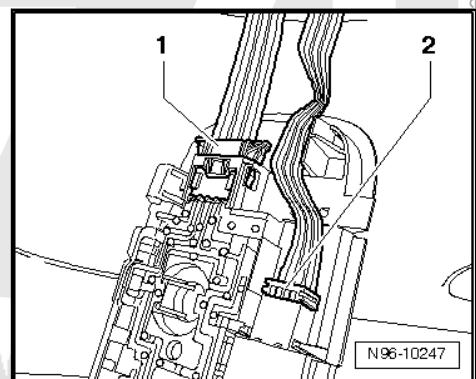
- Remove the entire trim piece -1- (with diffusion lens and reflectors) down vertically -arrows- from the Rear Interior Lamp -W43-.



- Press both tabs -2- in the direction of -arrow A- and remove the entire Rear Interior Lamp -W43- -1- from the headliner in the direction of -arrow B-.



- Disconnect the connectors -1- and -2-.



## Installing

Install in reverse order of removal.

### 4.6.13 Rear Interior Lamp -W43- Bulb

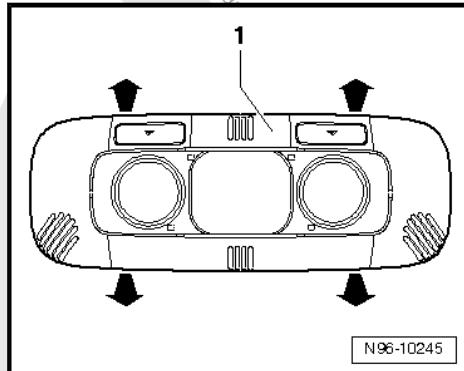
#### Note

- ◆ If one of the Rear Interior Lamp -W43- bulb must be replaced, the anti-theft alarm system must be deactivated  
⇒ A4.9.1 "Alarm System, Activating/Deactivating", page 401  
 (through MY 09).
- ◆ The Anti-Theft Alarm System Ultrasound Sensor -G209- must not be moved from its pre-set position (through MY 2009).

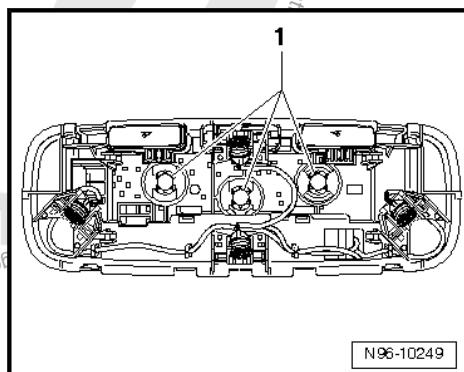


## Removing

- Remove the entire trim piece-1-(lens and reflector) vertically downward from the Rear Interior Lamp -W43-.



- Remove the bulb -1- from the bulb socket -arrows-.



Bulb: glass base bulb 12 V/5 W



### Caution

- Do not touch the glass of the bulb during installation.  
Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the glass.

## Installing

Install in reverse order of removal.



## 4.7 Center Console Lamps and Switches

⇒ [i4.7.1 n Center Console Storage Compartment", page 393](#)

⇒ [w4.7.2 ith Socket", page 394](#)

### 4.7.1 Button in Center Console Storage Compartment



#### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.



#### Note

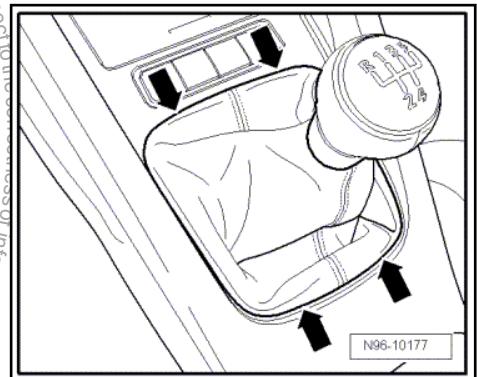
Removing and installing a single button (ASR/ESP button -E256-) is described here. Removing and installing the other buttons is identical.

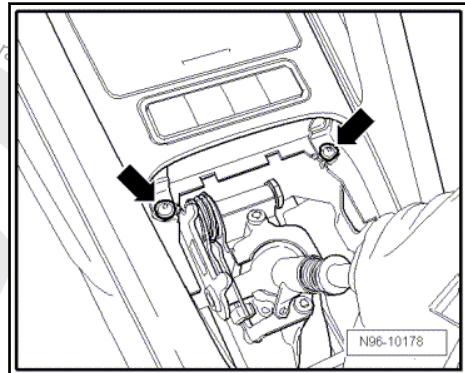
#### Removing

The Parking Aid Button -E266-, Parallel Parking Assistance Button -E581-, Damping Adjustment Button -E387- (from MY 2010) and the ASR/ESP button -E256- can be checked before they are removed with the Vehicle Diagnostic Tester, refer to ⇒ [i3.6 n Center Console Storage Compartment", page 354](#).

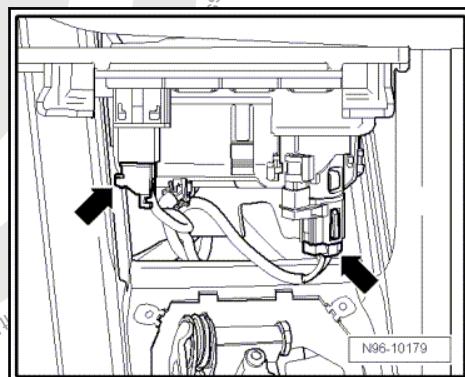
- Carefully pry the selector lever boot out of the center console -arrows-.

- Remove the bolts -arrows-.

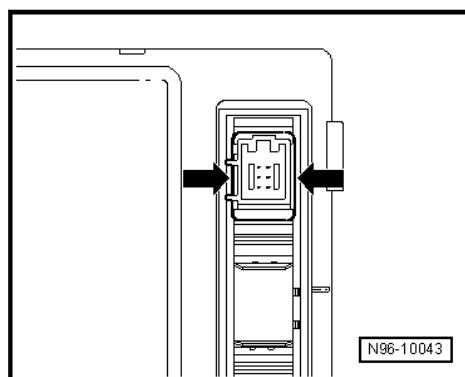




- Remove the ashtray from the center console.
- Disconnect the connectors -arrows-.



- Release the tabs -arrows- and remove the button from the frame.



## Installing

Install in reverse order of removal.

## Tightening Specifications

- ◆ Frame bolts: 2 Nm

## 4.7.2 Converter with Socket

### Special tools and workshop equipment required

- ◆ Trim Removal Wedge -3409-



### WARNING

- ◆ *The Converter with Socket, 12V, 230V-U13-/Converter with Socket, 12V-115V-U27- housing contains condensers that can be charged with residual voltage.*
- ◆ *There is a danger of electric shock.*
- ◆ *The Converter with Socket, 12V, 230V-U13-/Converter with Socket, 12V-115V-U27- housing must not be opened under any circumstances.*

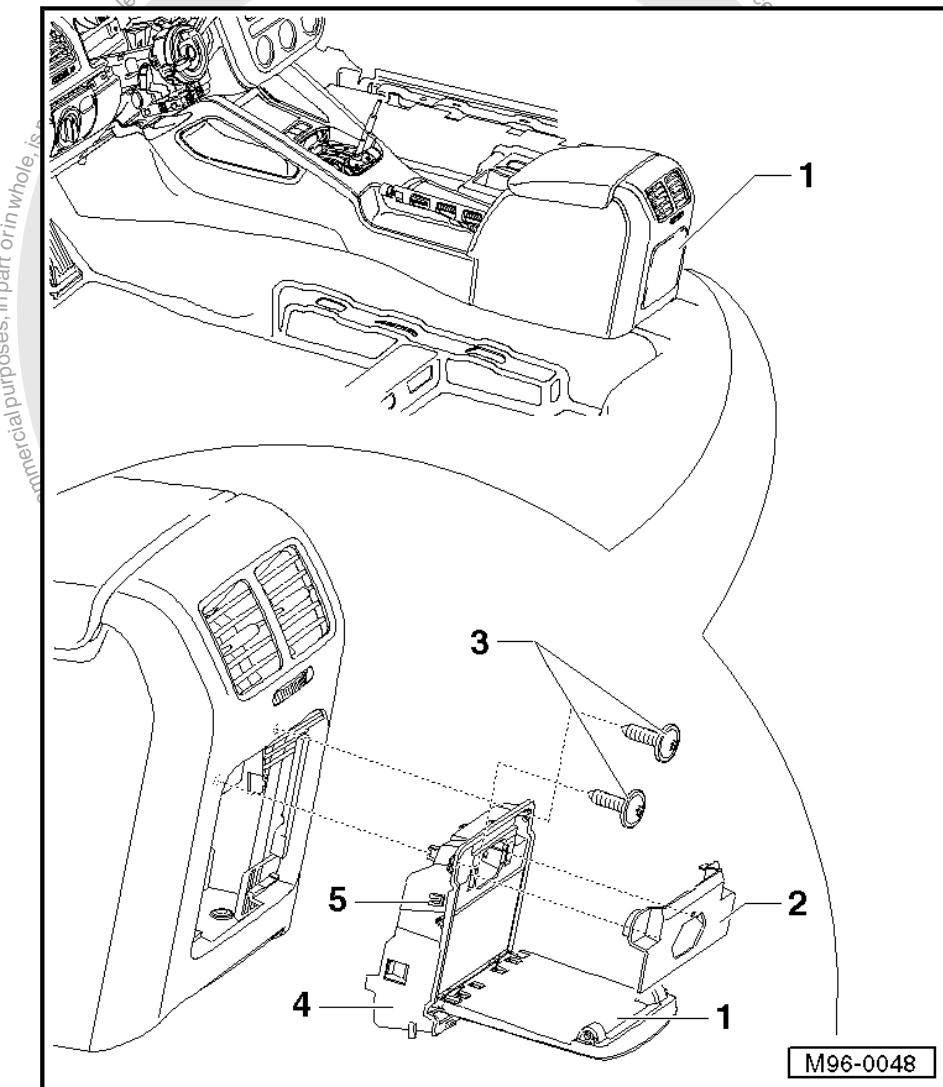


### Caution

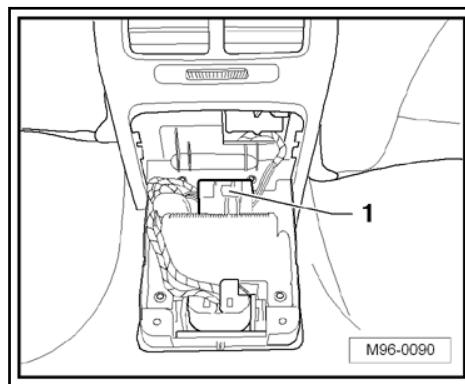
- ◆ *Turn off the ignition and all electrical equipment.*
- ◆ *Remove the key.*
- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.*
- ◆ *The connections, wires or 230 V socket must not be repaired under any circumstances.*
- ◆ *If there is a connection, wire or 230 V socket malfunction, replace the entire unit.*

### Removing

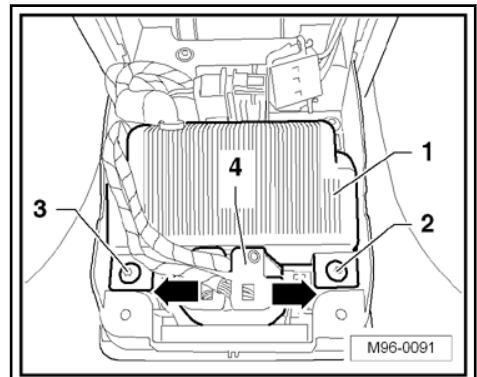
- Open the cover -1-.
- Remove the cover from the socket -2- using the Trim Removal Wedge -VAS 3409-. It is clipped on both sides of the socket.
- Remove the two bolts -3-.
- Remove the inner socket unit -4-. Both side brackets -5- must be loosened to do this.



- Disengage the connector -1- and disconnect.



- Release the socket -4- at the tabs -arrows- and remove the socket.



- Remove the bolts -2 and 3-.
- Remove the inverter -1-.

#### Installing

Install in reverse order.

#### Tightening Specifications

- ◆ Screws: 1.5 Nm

## 4.8 Immobilizer

⇒ [A4.8.1 Anti-Theft Immobilizer Control Module J362](#) ", page 397

⇒ [A4.8.2 Anti-Theft Immobilizer Control Module J362, Adapting](#)", page 397 .

⇒ [A4.8.3 Anti-Theft Immobilizer Reader Coil D2](#) ", page 398

⇒ [K4.8.4 ey, Variable Code Transponder](#)", page 398

⇒ [I4.8.5 Ignition Key](#)", page 398

⇒ [K4.8.6 ey to Anti-Theft Immobilizer, Adapting](#)", page 398

⇒ [I4.8.7 o Comfort System, Adapting, through MY 2009](#)", page 399

⇒ [I4.8.8 Identity when Replacing all Components](#)", page 399

⇒ [S4.8.9 System Test](#)", page 400

### 4.8.1 Anti-Theft Immobilizer Control Module -J362-

The Anti-theft Immobilizer Control Module -J362- is integrated into the instrument cluster. If the Anti-Theft Immobilizer Control Module -J362- is faulty, the entire instrument cluster must be replaced.

Replace instrument cluster ⇒ [C1.2 Cluster, Replacing](#)", page 63 .

### 4.8.2 Anti-Theft Immobilizer Control Module -J362-, Adapting

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select [Guided Fault Finding](#).
- Use the [GO TO](#) button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment



- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 25 - Anti-theft immobilizer
- ◆ Anti-theft immobilizer functions
- ◆ Anti-Theft Immobilizer, Adapting

#### 4.8.3 Anti-Theft Immobilizer Reader Coil - D2-

The Anti-Theft Immobilizer Reading Coil -D2- is connected to the Ignition Switch and cannot be replaced separately.

Ignition/Starter Switch, Removal and Installation. Refer to [I5.14.3 Ignition Switch D](#), page 295 .

#### 4.8.4 Ignition Key, Variable Code Transponder

It is not possible to replace variable code transponder in ignition key.

Ignition key must always be replaced if variable code transponder is malfunctioning.

If an ignition key is replaced or another ignition key is required, the new ignition key must always be adapted to the immobilizer [⇒ K4.8.6 Key to Anti-Theft Immobilizer, Adapting](#), page 398 .

If radio-frequency unit (transmitter for radio operated central locking) of ignition key is replaced, it must be adapted to the comfort system (through MY 2009). Refer to [⇒ t4.8.7 o Comfort System, Adapting, through MY 2009](#), page 399 .

#### 4.8.5 Lost Ignition Key

All keys are already pre-coded to a specific vehicle from the factory and can only be adapted to this vehicle. The subsequent ordering of vehicle keys must be performed via entry of the respective Vehicle Identification Number (VIN) and then the new keys must be adapted to the Anti-Theft Immobilizer Control Module -J362-.

The function "New identity when replacing all components" must be called up before replacing the lock set or the control modules [⇒ I4.8.8 Identity when Replacing all Components](#), page 399 .

Ignition Key, Adapting [⇒ K4.8.6 Key to Anti-Theft Immobilizer, Adapting](#), page 398 and [⇒ t4.8.7 o Comfort System, Adapting, through MY 2009](#), page 399 .

#### 4.8.6 Ignition Key to Anti-Theft Immobilizer, Adapting

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:

##### Through MY 2009

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems



- ◆ Anti-theft immobilizer 4A
- ◆ Adapting a key

#### From MY 2010

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 25 - Anti-theft immobilizer
- ◆ Anti-theft immobilizer functions
- ◆ Adapting a key

### 4.8.7 Key to Comfort System, Adapting, through MY 2009

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Comfort system
  - ◆ Functions of central control module for comfort system
  - ◆ Adapting/checking key with radio-frequency remote control

### 4.8.8 New Identity when Replacing all Components

#### Procedure

All required steps necessary for new installation of all immobilizer components are performed by this program.

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:

#### Through MY 2009

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Anti-theft immobilizer 4A download
- ◆ Functions
- ◆ New identity

#### From MY 2010

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems



- ◆ 25 - Anti-theft immobilizer
- ◆ Anti-theft immobilizer functions
- ◆ New identity

#### 4.8.9 Online System Test

The following steps will be performed by this test program:

- ◆ System test for online connection
- ◆ Test of user authorization
- ◆ Test to determine if there is a correct wire connection to the Volkswagen database

The requirements for this is the online connection to the Vehicle Diagnostic Tester.

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:

##### Through MY 2009

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 25 - Anti-theft immobilizer
- ◆ Anti-theft immobilizer functions
- ◆ Online system test

##### From MY 2010

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Anti-theft immobilizer 4C download
- ◆ Functions
- ◆ Online system test



## 4.9 Anti-Theft Alarm System

- ⇒ [A4.9.1 larm System, Activating/Deactivating", page 401](#)
- ⇒ [I4.9.2 nterior Lamp Ultrasound Sensor, through MY 2009", page 401](#)
- ⇒ [R4.9.3 ear Side of Roof Ultrasound Sensor, through MY 2009", page 402](#)
- ⇒ [A4.9.4 nti-Theft Alarm System SensorG578, from MY 2010", page 403](#)
- ⇒ [V4.9.5 hicle Inclination SensorG384, through MY 2006", page 404](#)
- ⇒ [V4.9.6 hicle Inclination SensorG384, from MY 2010", page 405](#)
- ⇒ [I4.9.7 nterior Monitoring SensorG273, from MY 2010", page 406](#)
- ⇒ [C4.9.8 entral Locking and Anti-Theft Alarm System AntennaR47 ", page 406](#)
- ⇒ [A4.9.9 larm HornH12 ", page 406](#)

### 4.9.1 Anti-Theft Alarm System, Activating/Deactivating

#### Anti-theft alarm system, activating

Anti-theft alarm system is automatically switched on by locking the vehicle. Anti-theft alarm system is then activated immediately.

So that anti-theft alarm system does not trigger unnecessary alarms, close all windows and doors before locking the vehicle.

#### Anti-theft alarm system, deactivating

The anti-theft alarm system is deactivated if

- ◆ the vehicle is unlocked using the unlock button on the remote control key
- ◆ The ignition is switched on.
- ◆ The Interior Monitoring Deactivation Switch -E267- was operated.

#### Unlocking vehicle mechanically (emergency opening)

- Lock the vehicle on the driver door.

Anti-theft alarm system remains activated, however no alarm is triggered.

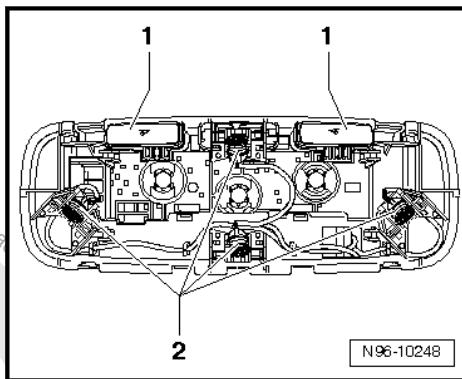
- Turn on the ignition within 15 seconds.

The alarm will go off after 15 seconds if the ignition is not turned on.

By switching on the ignition, the electronic immobilizer recognizes a valid vehicle key and deactivates the anti-theft alarm system.

### 4.9.2 Rear Interior Lamp Ultrasound Sensor, through MY 2009

The Anti-Theft Alarm System Ultrasound Sensor -G209-, is made up of 4 sensors-2-, wires and a control element on the back of the Rear Interior Lamp -W43-, which cannot be replaced individually. The complete Rear Interior Lamp -W43- must be replaced.



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Left Rear Footwell Light -W43-, Vehicles with Anti-Theft Alarm System, Removal and Installation ⇒ [R4.6.12 ear Interior Lamp W43](#) ", page 390 .

#### 4.9.3 Left Rear Side of Roof Ultrasound Sensor, through MY 2009

**Special tools and workshop equipment required**

- ◆ Trim Removal Wedge -VAS 3409-

From model year 2007, the Vehicle Inclination Sensor -G384- and Anti-Theft Alarm System Ultrasound Sensor -G209- are installed in one unit on the left rear side of the roof.

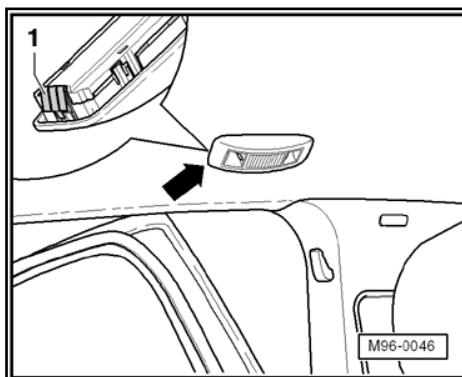


##### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

##### Removing

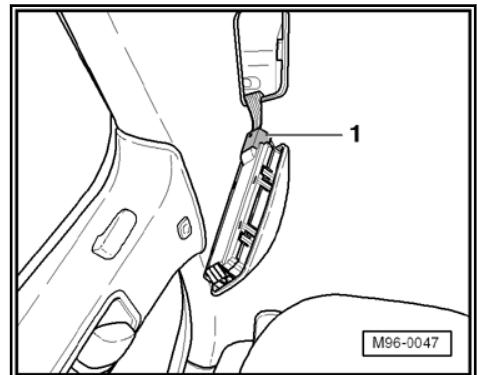
- Unclip the Anti-Theft Alarm System Ultrasound Sensor -VAS 3409- -arrow- using Trim Removal Wedge -G209-.



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The clip -1- that holds the Anti-Theft Alarm System Ultrasound Sensor -G209- has three prongs. To loosen the Anti-Theft Alarm System Ultrasound Sensor -G209-, the three prongs must be pressed. Otherwise, the sensor will not come out.

- Remove the Anti-Theft Alarm System Ultrasound Sensor - G209-.



- Disconnect the connector -1- from the Anti-Theft Alarm System Ultrasound Sensor -G209-.

#### Installing

Install in reverse order of removal.

#### 4.9.4 Anti-Theft Alarm System Sensor - G578-, from MY 2010

##### Special tools and workshop equipment required

- ◆ Trim Removal Wedge -3409-

The Anti-Theft Alarm System Sensor -G578- includes the Vehicle Inclination Sensor -G384- and the Interior Monitoring Sensor -G273- (two sensors).

The Anti-Theft Alarm System Sensor -G578- cannot be disassembled.



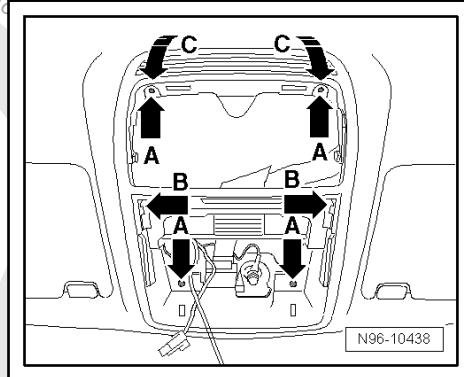
##### Caution

- ◆ Turn off the ignition and all electrical equipment.
- ◆ Remove the key.
- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

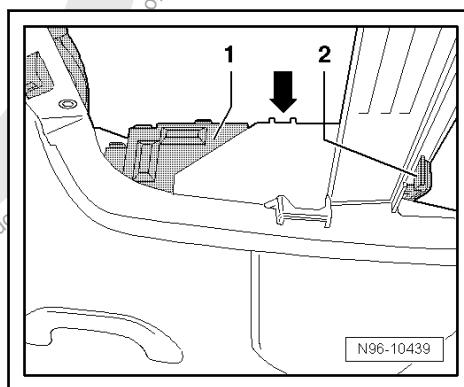
#### Removing

The Anti-Theft Alarm System Sensor -G578- can be checked before it is removed with the Vehicle Diagnostic Tester (from MY 2010), refer to [⇒ page 356](#).

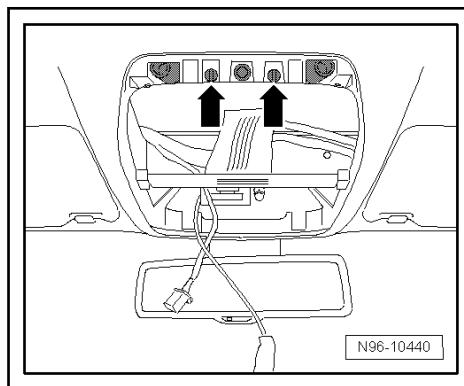
- Remove the Front Interior Lamp -W1-.
- ◆ Vehicles without a sunroof, refer to [⇒ F4.6.3 front Interior Lamp W1](#), page 380 .
- ◆ Vehicles with a sunroof, refer to [⇒ F4.6.6 front Interior Lamp W1](#), page 384 .
- Remove the screws -arrows A-, release the tabs -arrows B- and remove the bracket from the headliner in the direction of -arrow C-.



- Disconnect the connector -2- from the Anti-Theft Alarm System Sensor -G578- -1-.



- Release the Anti-Theft Alarm System Sensor -G578- -1- from the tab -arrow-.
- Release the sensor tabs and remove the sensors and the Anti-Theft Alarm System Sensor -G578- out from the head-liner.

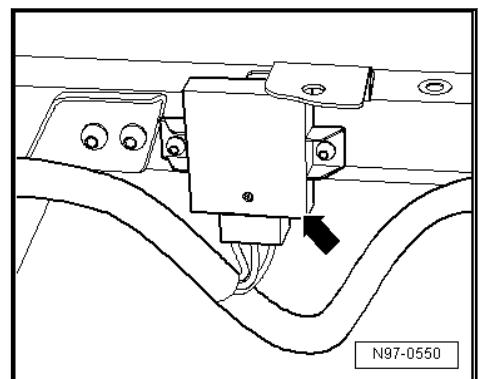


## Installing

Install in reverse order of removal.

### 4.9.5     Vehicle Inclination Sensor -G384-, through MY 2006

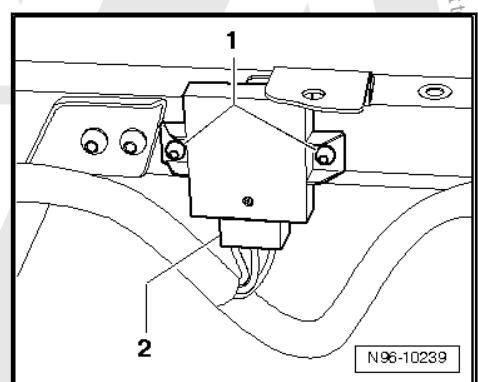
The Vehicle Inclination Sensor -G384- -arrow- is located under instrument panel at right, under front passenger airbag.



To remove the Vehicle Inclination Sensor -G384-, anti-theft warning system must be deactivated ⇒ [A4.9.1 Alarm System, Activating/Deactivating](#), page 401 .

### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Remove the screws -1- and then remove the Vehicle Inclination Sensor -G384- from the carrier.



- Disconnect the connector -2- from the Vehicle Inclination Sensor -G384-.

### Installing

Install in reverse order of removal.

#### Tightening Specifications

- ◆ Screws: 3 Nm

## 4.9.6 Vehicle Inclination Sensor -G384-, from MY 2010

The Anti-Theft Alarm System Sensor -G578- includes the Vehicle Inclination Sensor -G384- and the Interior Monitoring Sensor -G273- (2 sensors).

The Anti-Theft Alarm System Sensor -G578- cannot be disassembled.

Anti-Theft Alarm System Sensor -G578-, Removal and Installation, refer to ⇒ [A4.9.4 Anti-Theft Alarm System Sensor G578, from MY 2010](#), page 403 .



#### 4.9.7 Interior Monitoring Sensor -G273-, from MY 2010

The Anti-Theft Alarm System Sensor -G578- includes the Vehicle Inclination Sensor -G384- and the Interior Monitoring Sensor -G273- (2 sensors).

The Anti-Theft Alarm System Sensor -G578- cannot be disassembled.

Anti-Theft Alarm System Sensor -G578-, Removal and Installation, refer to [⇒ A4.9.4 Anti-Theft Alarm System Sensor G578, from MY 2010](#), page 403 .

#### 4.9.8 Central Locking and Anti-Theft Alarm System Antenna -R47-

##### Through MY 2009

The Central Locking and Anti-Theft Alarm System Antenna -R47- is routed from Comfort System Central Control Module -J393- to the left A-pillar in the main wiring harness.

It is not possible to repair the Central Locking and Anti-Theft Alarm System Antenna -R47- because it would affect the quality of reception.

If damaged, it is necessary to replace the Central Locking and Anti-theft Alarm System Antenna -R47-.

##### From MY 2010

The Central Locking and Anti-Theft Alarm System Antenna -R47- receives radio signals from the remote control key and relays them to the Vehicle Electrical System Control Module -J519-.

The Central Locking and Anti-Theft Alarm System Antenna -R47- is integrated inside the Vehicle Electrical System Control Module -J519- and cannot be replaced separately.

Additional information:

- ◆ Refer to Wiring diagrams, Troubleshooting & Component locations.

#### 4.9.9 Alarm Horn -H12-

##### Special tools and workshop equipment required

- ◆ Drill -VAS 5134-
- ◆ Drill bit diameter 6 mm
- ◆ Pop Rivet Pliers -VAS 5072A-

The Alarm Horn -H12- is located at the right on the A-pillar inside the fender.

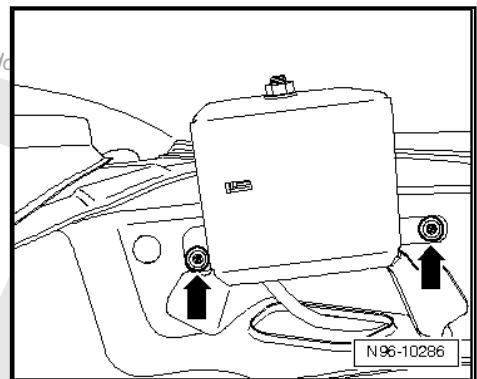
To remove the Alarm Horn -H12-, anti-theft alarm system must be deactivated. Refer to [⇒ A4.9.1 Alarm System, Activating/Deactivating](#), page 401 .

##### Removing

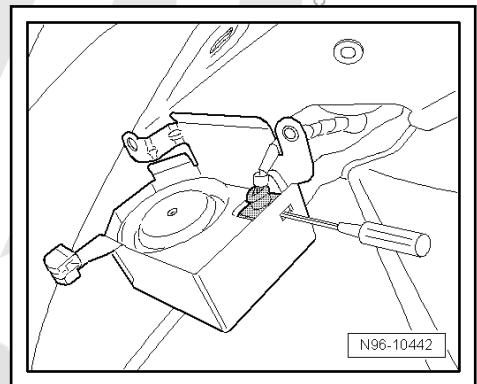
- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove the right front wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66; Description and Operation.
- Using the Drill -VAS 5134- and a 6 mm spiral drill, drill out the two pop rivets -arrows-.



- Use small screwdriver to release and disconnect electrical connection -1- through opening in housing -2- and remove Alarm Horn -H12- -3- from wheel housing.



- Remove the rest of the blind rivet -arrows- from the holes in the body.

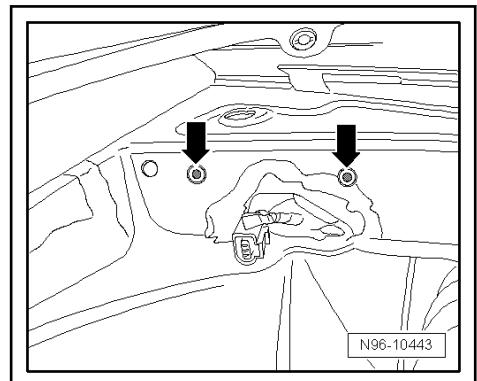


## Installing



*Remove all metal shavings through the drilled holes.*

- Apply corrosion protection. Refer to General Information; Body Repairs, Body Collision Repair.

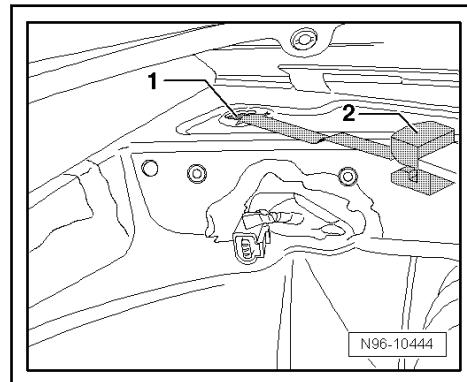




### Note

For reasons of clarity, the Alarm Horn -H12- is not depicted in the following illustrations and thus the connector is not connected.

- Install the Alarm Horn -H12- clip -2- into the opening in the body -1-.



- Install the Alarm Horn -H12- with new blind rivets.
- Install the right front wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66; Description and Operation.

### Checking the Alarm Horn -H12-

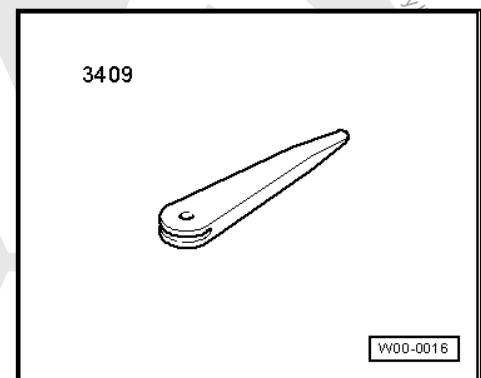
The Alarm Horn -H12- can be checked using output Diagnostic Test Mode (DTM) of the Comfort System Central Control Module -J393- ⇒ [C4.3.1 omfort System Central Control Modu](#)  
[leJ393, Output Diagnostic Test, through MY 2009](#), page 426 .



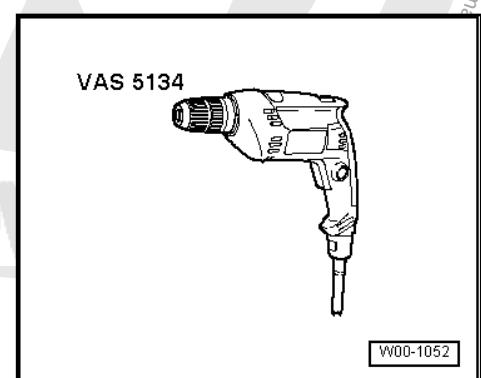
## 5 Special Tools

### Special tools and workshop equipment required

- ◆ Trim Removal Wedge -VAS 3409-



- ◆ Drill -VAS 5134-



- ◆ Drill bit diameter 6 mm
- ◆ Pop Rivet Pliers -VAS 5072A-





## 97 – Wiring

### 1 General Information

- ⇒ [D1.1 Diagnosis, Testing and Information Systems", page 410](#)
- ⇒ [V1.2 Vehicle Electrical System Control Module J519 ", page 410](#)
- ⇒ [D1.3 Data Bus On Board Diagnostic Interface J533 ", page 413](#)
- ⇒ [C1.4 Comfort System Central Control Module J393 ", page 413](#)
- ⇒ [D1.5 Driver Door Control Module J386 ", page 414](#)
- ⇒ [F1.6 Front Passenger Door Control Module J387 ", page 414](#)
- ⇒ [L1.7 Left Rear Door Control Module J388 ", page 414](#)
- ⇒ [R1.8 Right Rear Door Control Module J389 ", page 414](#)
- ⇒ [H1.9 Harness and Connector Repairs", page 414](#)
- ⇒ [I1.10 Information and Safety Precautions", page 414](#)

#### 1.1 Vehicle Diagnosis, Testing and Information Systems



All instructions and information on this chapter can be found in the repair manual "Electrical Equipment General Information". A link to this repair manual is not possible at this time due to technical reasons. Refer to repair manual "Electrical Equipment General Information" in ELSA.

#### 1.2 Vehicle Electrical System Control Module -J519-

The Vehicle Electrical System Control Module -J519- and relay carrier on the left side of the instrument panel are a single component and cannot be separated.

The relay carrier is clipped to the bottom of the Vehicle Electrical System Control Module -J519- and can be removed (from MY 2010).

Additional information:

- ◆ Refer to Wiring diagrams, Troubleshooting & Component locations.
- ◆ Refer to Owner's Manual.

The Vehicle Electrical System Control Module -J519- has the following functions:

##### Through MY 2009

- ◆ Electric load management
- ◆ Exterior light control
- ◆ Turn signal control
- ◆ Wipers, rear window
- ◆ Rear window defogger
- ◆ Interior light control



- ◆ Ambient lighting
- ◆ Terminal control
- ◆ Dimming, instrument illumination
- ◆ Fuel Pump (FP) supply
- ◆ Pre-energizing of generator
- ◆ Horn

#### From MY 2010

- ◆ Electric load management
- ◆ Exterior light control
- ◆ Turn signal control
- ◆ Wipe/wash, windshield and rear window
- ◆ Headlamp Washer System
- ◆ Rain light sensor
- ◆ Windshield and rear window defrosters
- ◆ Interior light control
- ◆ Terminal control
- ◆ Dimming, instrument illumination
- ◆ Footwell Lamps
- ◆ Fuel Pump (FP) supply
- ◆ Pre-energizing of generator
- ◆ Horn
- ◆ Warning lamp
- ◆ Release control
- ◆ Controls central locking system
- ◆ Front and rear door control module activation
- ◆ Actuates rear lid unlock
- ◆ Actuates tank flap release
- ◆ Anti-theft alarm system activation
- ◆ Anti-theft immobilizer activation
- ◆ Start authorization activation

The following functions can be adapted:

#### Through MY 2009

- ◆ Adapting coming home time. Refer to [⇒ C5.5.15 oming Home Time](#), page 446 .
- ◆ Adapting leaving home tim. Refer to [⇒ L5.5.16 eaving Home Time](#), page 446 .
- ◆ Adapt the shut-off time for the rear window defroster. Refer to [⇒ W5.5.7 indow Defroster Switch-Off Time, Adapting, through MY 2009](#), page 443
- ◆ Footwell illumination intensity, setting. Refer to [⇒ I5.5.19 llu-mination Intensity, Adapting](#), page 447 .
- ◆ Daytime Running Lamps, Coding and Decoding [⇒ R5.5.8 unning Lamps, Coding and Decoding, through MY 2009](#), page 443



- ◆ Set load management
- ◆ Set headlamp cleaning system "on time" ⇒ [W5.5.6 asher System, Adapting, through MY 2009](#), page 443

#### From MY 2010

- ◆ Acoustic Acknowledgement when Unlocking. Refer to ⇒ [A5.5.9 cknowledge when Unlocking](#), page 444 .
- ◆ Acoustic Acknowledgement when Locking, Adapting. Refer to ⇒ [A5.5.10 cknowledge when Locking, Adapting](#), page 444 .
- ◆ Adaptation, blinking cycle during the comfort blinking, refer to ⇒ [C5.5.11 ycle during One-Touch Lane Change Signaling, Adapting](#), page 444
- ◆ Automatic unlocking when key is removed adapting. Refer to ⇒ [U5.5.12 locking when Key Removed, Adapting](#), page 445 .
- ◆ Automatic locking at 15 km/h, adapting. Refer to ⇒ [A5.5.13 utomatic Locking at 15 km/h](#), page 445 .
- ◆ Comfort locking confirmations adapting. Refer to ⇒ [L5.5.14 ocking Confirmation, Adapting](#), page 445 .
- ◆ Coming Home time, adapting. Refer to ⇒ [C5.5.15 oming Home Time](#), page 446 .
- ◆ Leaving Home time, adapting. Refer to ⇒ [L5.5.16 eaving Home Time](#), page 446 .
- ◆ Anti-theft alarm delay when opening driver door, adapting
- ◆ Single door opening, adapting. Refer to ⇒ [D5.5.17 oor Opening, Adapting](#), page 446 .
- ◆ Interior monitoring sensitivity, adapting
- ◆ Vehicle Inclination Sensor Sensitivity, Adapting
- ◆ Factory mode, deactivating. Refer to ⇒ [M5.5.18 ode, Deactivating](#), page 447 .
- ◆ Footwell illumination intensity, setting. Refer to ⇒ [I5.5.19 llumination Intensity, Adapting](#), page 447 .
- ◆ Comfort operation via radio-frequency remote, adapting. Refer to ⇒ [O5.5.20 eration via Remote Control, Adapting](#), page 447 .
- ◆ Intelligent Alarm Horn Market Version, Adapting
- ◆ Visual Acknowledgment for Locking, Adapting. Refer to ⇒ [A5.5.21 cknowledgment for Locking, Adapting](#), page 448 .
- ◆ Remote control key, adapting. Refer to ⇒ [C5.5.22 ontrol Key, Adapting](#), page 448 .
- ◆ Output diagnostic test mode. Refer to ⇒ [V5.5.4 hicle Electrical SystemJ519 Output Diagnostic Test Mode](#), page 441 .

It depends on the vehicle equipment whether the adaptations listed above can be performed.

If the Vehicle Electrical System Control Module -J519- is to be replaced, the work procedure to read out the codes stored in the Vehicle Electrical System Control Module -J519- must always be performed. Refer to ⇒ [V5.5.5 hicle Electrical System Control ModuleJ519, Coding](#), page 442 .

#### DTC recognition and display

The Vehicle Electrical System Control Module -J519- is equipped with OBD.



Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.

### 1.3 Data Bus On Board Diagnostic Interface -J533-

The Data Bus On Board Diagnostic Interface -J533- is designed as a separate control module. It has the following tasks in the vehicle:

- ◆ Perform data exchange between CAN-Bus systems "Powertrain CAN-Bus", "Convenience CAN-Bus" and "Infotainment CAN-Bus"
- ◆ Transfers diagnostic data of CAN-Bus systems onto K-wire and vice-versa, allowing the data from the Vehicle Diagnostic Tester to be used

If Data Bus On Board Diagnostic Interface -J533- is to be removed, the work procedure to read out the codes stored in the module must always be performed [⇒ D5.6.1 ata Bus On Board Diagnostic InterfaceJ533](#), page 449 .

Additional information:

- ◆ Refer to Wiring diagrams, Troubleshooting & Component locations.
- ◆ Refer to Owner's Manual.

#### DTC recognition and display

The Data Bus On Board Diagnostic Interface -J533- is equipped with OBD.

Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.

### 1.4 Comfort System Central Control Module -J393-

#### General Information

Comfort System Central Control Module -J393- performs the following tasks in the vehicle:

- ◆ Sunroof control (issues enabling)
- ◆ Window regulator control (issues enabling)
- ◆ Central locking system control
- ◆ Anti-theft warning system control
- ◆ Radio receiver
- ◆ Rear lid closing
- ◆ Comfort operation

Some of the functions listed above can be adapted [⇒ C5.7.3 omfort System Central Control ModuleJ393, Adapting Components, through MY 2009](#), page 454 .

Additional information:

- ◆ Refer to Owner's Manual.
- ◆ Refer to Wiring diagrams, Troubleshooting & Component locations.

#### DTC recognition and display

The Comfort System Central Control Module -J393- is equipped with OBD.





Use "Guided Fault Finding" function in the Vehicle Diagnostic Tester.

## 1.5 Driver Door Control Module -J386-

Driver Door Control Module -J386- and Driver Window Regulator Motor -V147- comprise a single component and cannot be replaced individually.

In the event that the Driver's Door Control Module -J386- or Driver's Window Regulator Motor -V147- require replacement, always perform On Board Diagnostic (OBD) program function »Driver's Door Control Module, coding« [⇒ D5.8.2 river Door Control Module J386, Coding](#), page 454 .

## 1.6 Front Passenger Door Control Module -J387-

The Front Passenger Door Control Module -J387- and Front Passenger Window Regulator Motor -V148- form a single component and cannot be replaced separately.

If Front Passenger Door Control Module -J387- or Front Passenger Window Regulator Motor -V148- is to be replaced, the work procedure »Code front passenger side door control module« must then be performed [⇒ F5.9.2 ront Passenger Door Control Module J387, Coding](#), page 455 .

## 1.7 Left Rear Door Control Module -J388-

Left Rear Door Control Module -J388- and Left Rear Window Regulator Motor -V26- compose a single component and cannot be replaced individually.

If Left Rear Door Control Module -J388- or Left Rear Window Regulator Motor -V26- is to be replaced, the work procedure »Code left rear door control module« must then be performed [⇒ L5.10.2 eft Rear Door Control Module J388, Coding](#), page 456 .

## 1.8 Right Rear Door Control Module -J389-

Right Rear Door Control Module -J389- and Right Rear Window Regulator Motor -V27- compose a single component and cannot be replaced individually.

In the event that the Right Rear Door Control Module -J389- or Right Rear Window Regulator Motor -V27- needs to be replaced, always perform the »Right Rear Door Control Module«, Coding program function. Refer to [⇒ R5.11.2 ight Rear Door Control Module J389, Coding](#), page 457 .

## 1.9 Wiring Harness and Connector Repairs



### Note

All instructions and information on this chapter can be found in the repair manual "Electrical Equipment General Information". A link to this repair manual is not possible at this time due to technical reasons. Refer to repair manual "Electrical Equipment General Information" in ELSA.

## 1.10 Application Information and Safety Pre-cautions

Eliminate the cause of damage to the wiring harness such as sharp body components, faulty electrical components or corrosion before repairing the wiring.



- Note the following when performing assembly work on the engine wiring harness:



**Caution**

- ◆ *Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ D5.1 disconnecting and Connecting", page 16 .*
- ◆ *If a glow plug wire or connector is damaged, the entire wiring harness including the connector must be replaced. Connectors cannot be replaced separately.*



**DANGER!**

- ◆ *Follow all Safety Precautions when working on the Diesel direct fuel injection system. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23; General Information.*
- ◆ *Follow the guidelines for clean working conditions. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23; General Information.*

*Always follow these instructions before and while working.*



**WARNING**

*Follow the guidelines below during all assembly work and especially when working in the engine compartment due to the restricted space:*

- ◆ *Route all lines and electrical wiring in their original locations.*
- ◆ *Make sure there is sufficient clearance to all moving or hot components.*



## 2 Description and Operation

2.0L TDI (CBEA) ➔ [H2.1 arness Overview", page 416](#)

➔ [I2.2 nformation", page 422](#)

### 2.1 Wiring Harness Overview

➔ [W2.1.1 iring Harness Assembly, Top View", page 416](#)

➔ [W2.1.2 iring Harness, Exhaust Side", page 420](#)

➔ [W2.1.3 iring Harness, Intake Side", page 421](#)

#### 2.1.1 Engine Wiring Harness Assembly, Top View



**1 - Injection Unit Connectors, 2-pin**

**2 - Heat Shield**

- Note the installation location [⇒ page 423](#).
- Replace if damaged.

**3 - Charge Pressure Actuator Position Sensor -G581- 3-pin connector**

- Information. Refer to [⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 21; Description and Operation.](#)

**4 - Bracket on the Cylinder Head Cover**

- For the wiring harness

**5 - Fuel Pressure Regulator Valve -N276- 2-pin Connector**

- Information. Refer to [⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23; Description and Operation.](#)

**6 - Fuel Temperature Sensor -G81- 2-pin Connector**

- Information. Refer to [⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23; Description and Operation.](#)

**7 - Fuel Metering Valve - N290- 2-pin Connector**

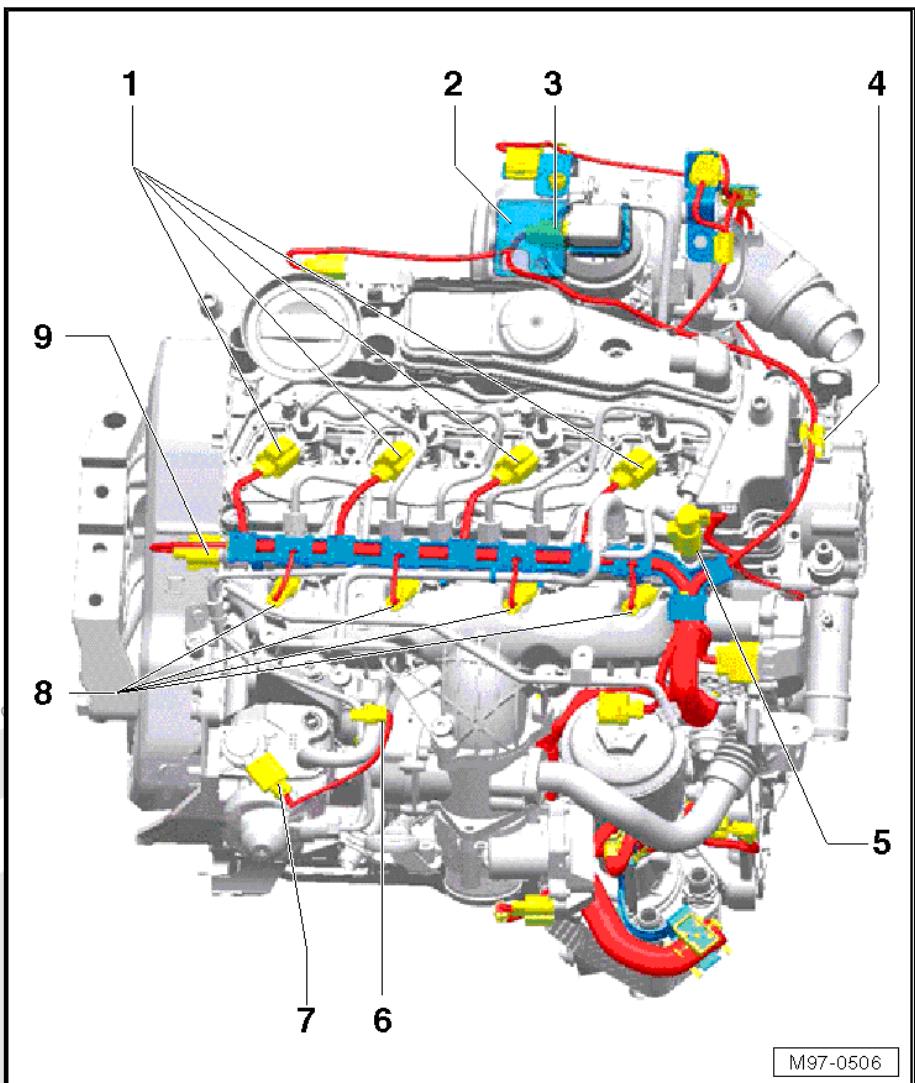
- Information. Refer to [⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23; Description and Operation.](#)

**8 - Glow Plug Connectors**

- Information. Refer to [⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23; Description and Operation.](#)



**9 - Fuel Pressure Sensor -G247- 3-pin Connector**



M97-0506

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□ Information. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23; Description and Operation.

## Glow Plug Connectors, Removal and Installation

### Special tools and workshop equipment required

◆ Wheel Bolt Cap Pliers -3314-

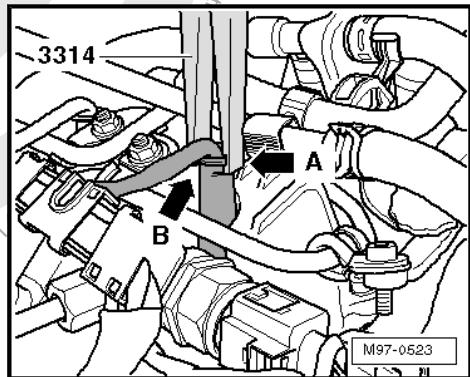


#### Caution

*Before removing the glow plug connectors, note the different installation depths for the glow plugs in each cylinder.*

### Removing

- Position the Wheel Bolt Cap Pliers -3314- with the groove -arrow A- on the upper edge of the connector -arrow B- and press together lightly.



#### Caution

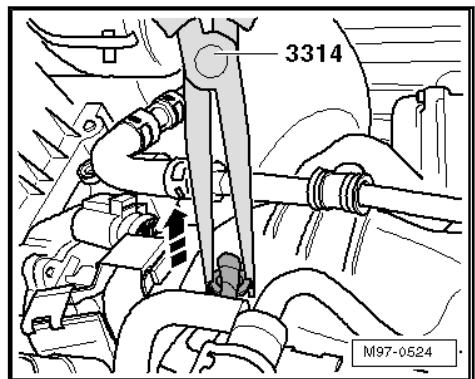
*Position the Wheel Bolt Cap Pliers -3314- so they do not touch or damage the wire.*

*Only use the tool shown.*

*Other tools may be unsuitable and could damage the connector.*

*If the connector should get damaged while being removed, then the complete wiring harness including the connector must be replaced. The connector cannot be replaced alone.*

- Carefully disconnect the connector from the glow plug in the direction of the -arrow- using the Wheel Bolt Cap Pliers -3314-.



#### Caution

*Do not pull the connector roughly.*

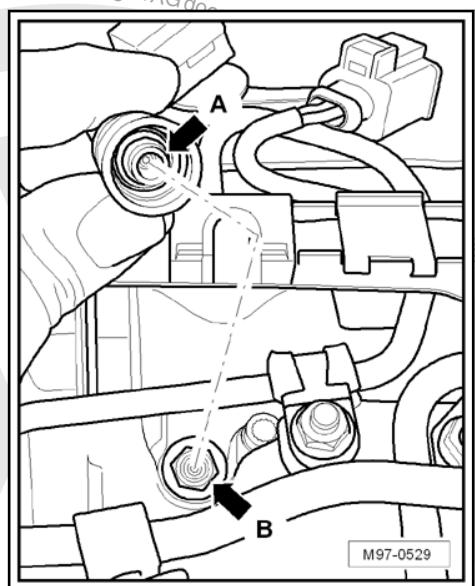
*The connector on the wire must not be damaged.*

*Do not squeeze the Wheel Bolt Cap Pliers -3314- together too hard or the connector will be damaged.*

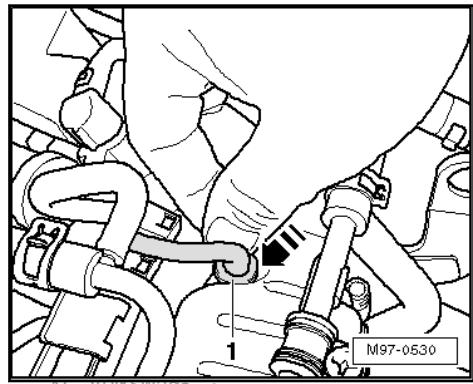
*The connector is covered with a protective sleeve that can be replaced if damaged.*

#### Installing

- Guide the center contact on the connector -arrow A- into the glow plug socket -arrow B- by hand.



- Press the glow plug connector -1- on by hand until it clicks into place.



## 2.1.2 Engine Wiring Harness, Exhaust Side

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**1 - EGR Temperature Sensor  
-G98- Connector**

- Information. Refer to → Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 26; Description and Operation.

**2 - Exhaust Pressure Sensor  
-G451- 3-pin Connector**

- Note the installation location.
- Information. Refer to → Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 21; Description and Operation.

**3 - Heat Shield**

- Note the installation location [⇒ page 423](#).
- Replace if damaged.

**4 - EGR Valve 2 -N213- Connector**

- Information. Refer to → Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 21; Description and Operation.

**5 - Cable Tie on Control Wire**

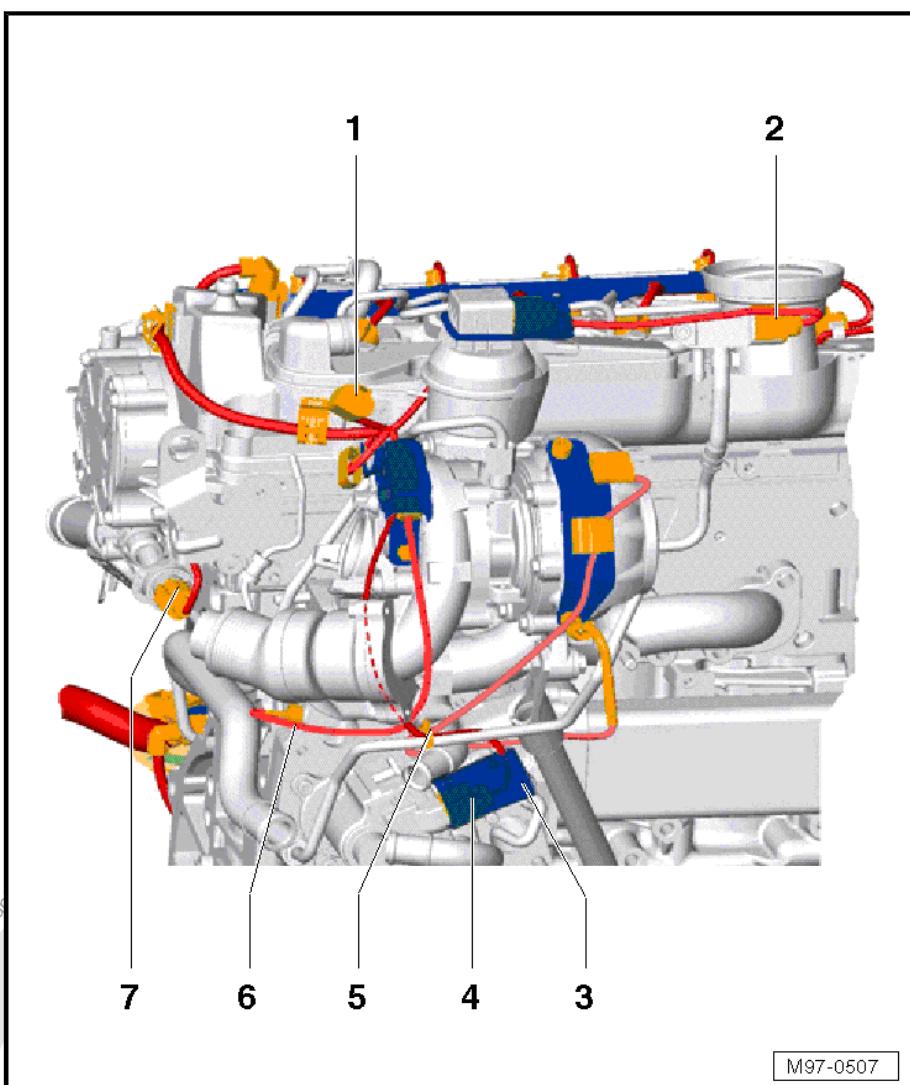
- Information. Refer to → Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 26; Description and Operation.
- Note the installation location.
- Replace

**6 - EGR Temperature Sensor -G98-**

- Information. Refer to → Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 26; Description and Operation.

**7 - Coolant Temperature Sensor -G62-, 2-pin**

- Information. Refer to → Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 15; Description and Operation.



## 2.1.3 Engine Wiring Harness, Intake Side



**1 - Intake Flap Motor -V157-, 5-Pin**

- Information. Refer to  
→ Engine Mechanical,  
Fuel Injection and Ignition; Rep. Gr. 23;  
Description and Operation.

**2 - Throttle Valve Control Module -J338-, 50-pin Connector**

- Information. Refer to  
→ Engine Mechanical,  
Fuel Injection and Ignition; Rep. Gr. 23;  
Description and Operation.

**3 - Connecting Base**

- Note the installation location.

**4 - Oil Pressure Switch -F1-, 1-pin**

- Information. Refer to  
→ Engine Mechanical,  
Fuel Injection and Ignition; Rep. Gr. 17;  
Description and Operation.

**5 - Bracket on Oil Filter Bracket**

- For the wiring harness
- Note the installation location.

**6 - Engine RPM Sensor -G28-, 3-pin Connector**

- Information. Refer to → Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 13; Description and Operation.

**7 - Camshaft Position Sensor -G40- 3-pin Connector**

- Information. Refer to → Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 15; Description and Operation.

**8 - Engine RPM Sensor -G28- Bracket on Cylinder Block**

- For the wiring harness

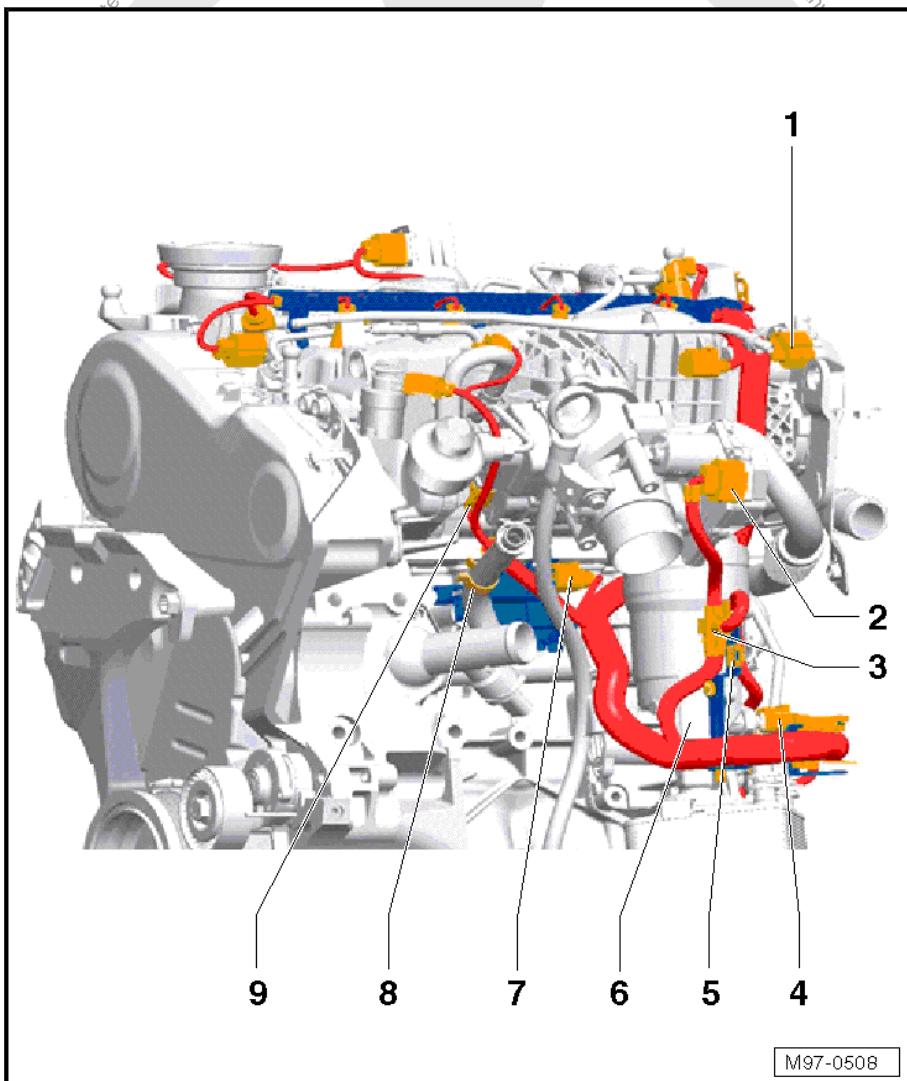
**9 - 6-pin Connector Mechanical EGR Vacuum Regulator Solenoid Valve -N18-**

- Information. Refer to → Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23; Description and Operation.

## 2.2 Installation Information

Additional information:

- ◆ Refer to Wiring diagrams, Troubleshooting & Component locations.





## Installation instructions connectors Engine Control Module - J623-

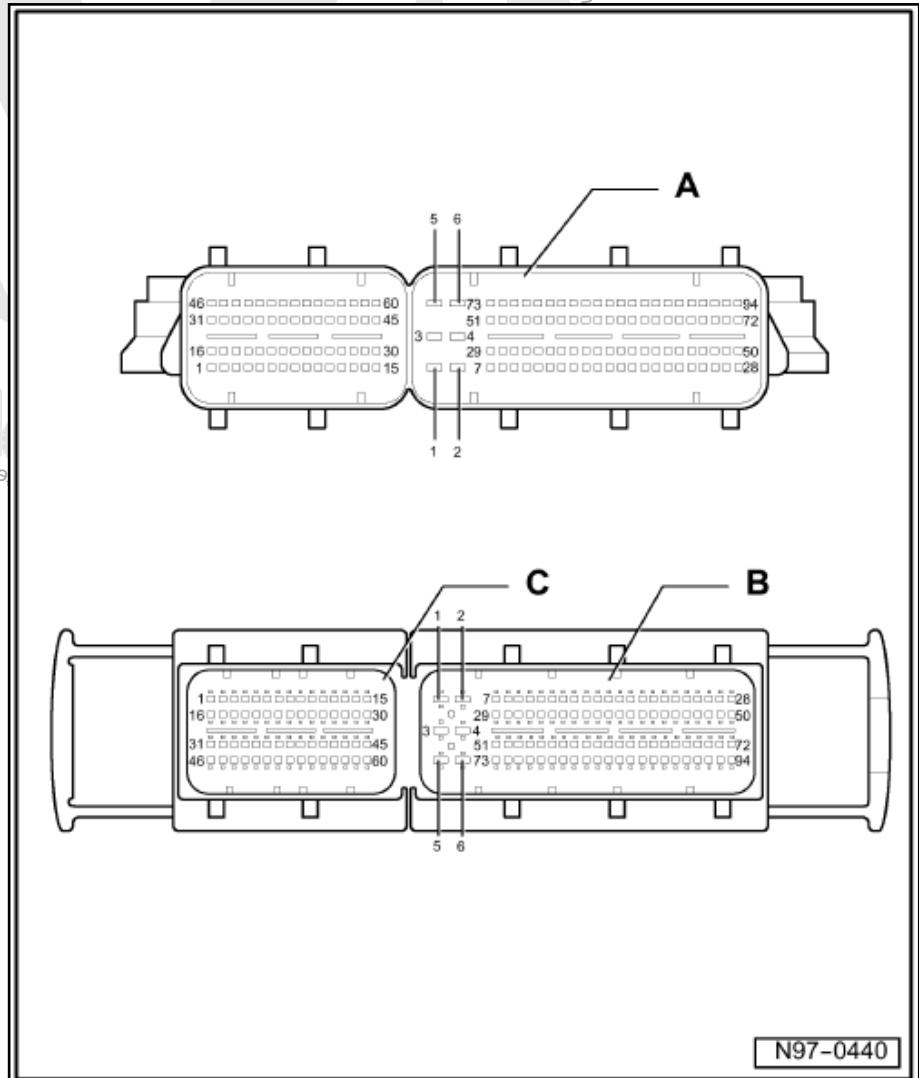


The illustration shows the 154-pin connector.

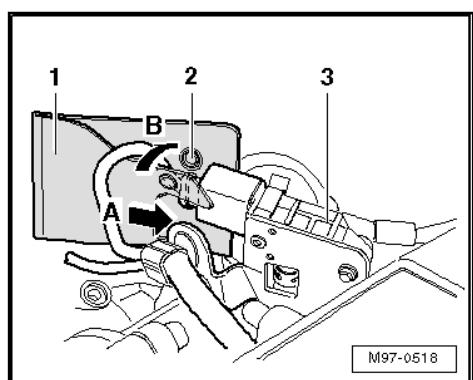
**A -**  
**Engine control module -J623-,**  
**154-pin**

**B - 94-pin connector**

**C - 60-pin connector**



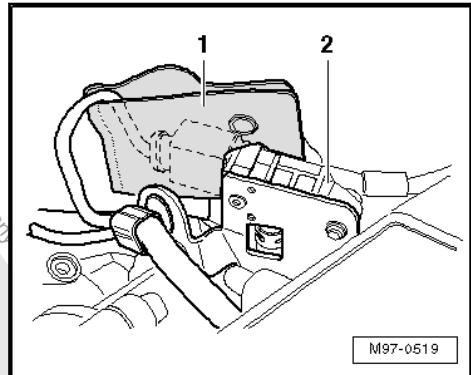
### Heat shield installation information:





- Slide the heat shield -1- onto the component -3- in the direction of - arrow A-.
- Turn the knob -2- in the direction of -arrow B- to secure.

The illustration shows the heat shield -1- seated correctly on the component -2-,



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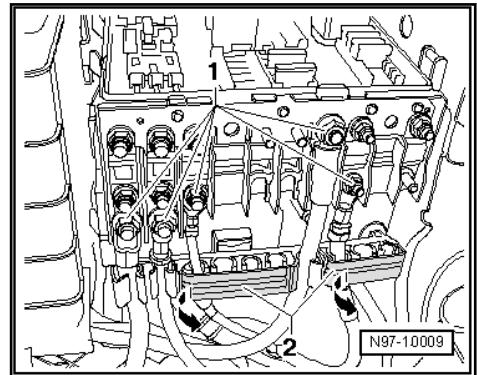


### 3 Specifications

⇒ [E3.1 engine Compartment E-Box, Tightening Specifications](#),  
 page 425

⇒ [R3.2 ecognition Control Module J345, Tightening Specifica-](#)  
 tions ", page 425

#### 3.1 Left Engine Compartment E-Box, Tightening Specifications



Component	Fastener Size	Nm
Nuts -1-.	M5	4
Nuts -1-.	M6	6

#### 3.2 Towing Recognition Control Module -J345-, Tightening Specifications

Component	Fastener Size	Nm
Bolts, bracket to body	-	2
Towing Recognition Control Module -J345- mounting bolts to bracket	-	2



## 4 Diagnosis and Testing

- ⇒ [K4.1 Ignition Key with Radio-Frequency Remote Control", page 426](#)
- ⇒ [B4.2 Bus Activity", page 426](#)
- ⇒ [C4.3 Comfort System Central Control Module J393 ", page 426](#)

### 4.1 Ignition Key with Radio-Frequency Remote Control

#### Procedure

Connect the Vehicle Diagnostic Tester.

Select [Guided Fault Finding](#).

Use the [GO TO](#) button to select the "function/component selection" and the following menu options one after the other:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 09 - Vehicle Electrical System Control Module
- ◆ Vehicle electrical system control module functions
- ◆ Ignition key with radio-frequency remote control, checking

### 4.2 Checking Bus Activity

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select [Guided Fault Finding](#).
- Use the [GO TO](#) button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 19 - Data Bus on board diagnostic interface J533
  - ◆ Functions of the Data Bus On Board Diagnostic Interface
  - ◆ Checking bus activity

### 4.3 Comfort System Central Control Module -J393-

- ⇒ [C4.3.1 Comfort System Central Control Module J393, Output Diagnostic Test, through MY 2009", page 426](#)

- ⇒ [A4.3.2 Alarm System Alarm Sources, Checking, through MY 2009", page 427](#)

### 4.3.1 Comfort System Central Control Module -J393-, Output Diagnostic Test, through MY 2009

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select [Guided Fault Finding](#).



- Use the **[GO TO]** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Comfort system
  - ◆ Functions of central control module for comfort system
  - ◆ Output Diagnostic Test Mode (DTM) for the Comfort System Central Control Module

#### 4.3.2 Anti-Theft Alarm System Alarm Sources, Checking, through MY 2009

##### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **[GO TO]** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Comfort system
  - ◆ Functions of central control module for comfort system
  - ◆ Anti-Theft Alarm System, Checking Alarm Sources



## 5 Removal and Installation

- ⇒ [I5.1 nstrument Panel Fuse Carrier", page 428](#)
- ⇒ [P5.2 anel", page 430](#)
- ⇒ [E5.3 ngine Compartment E-Box", page 434](#)
- ⇒ [G5.4 arage Door Opener Control ModuleJ530 ", page 438](#)
- ⇒ [V5.5 hicle Electrical System Control ModuleJ519 ", page 439](#)
- ⇒ [D5.6 ata Bus On Board Diagnostic InterfaceJ533 ", page 449](#)
- ⇒ [D5.8 river Door Control ModuleJ386 ", page 454](#)

2.0L TDI (CBEA) ⇒ [H5.12 arness", page 457](#)

### 5.1 Left Instrument Panel Fuse Carrier

Special tools and workshop equipment required

- ◆ Trim Removal Wedge -VAS 3409-



#### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ [D5.1 isconnecting and Connecting", page 16](#).*

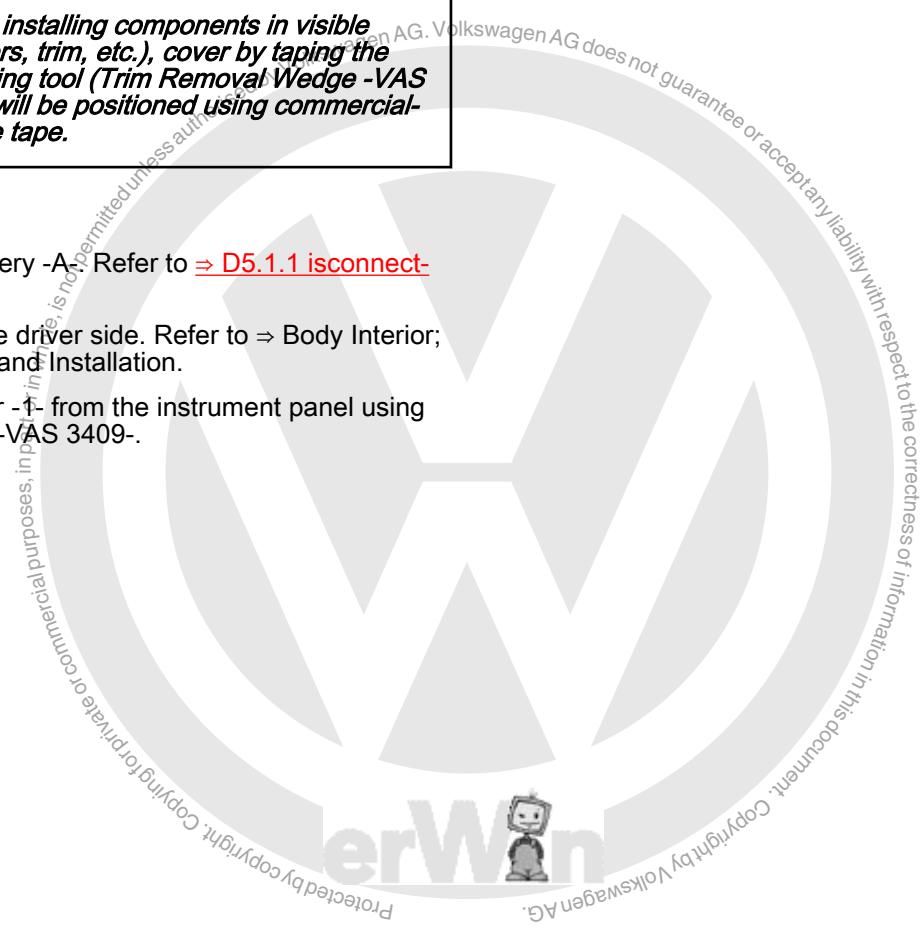


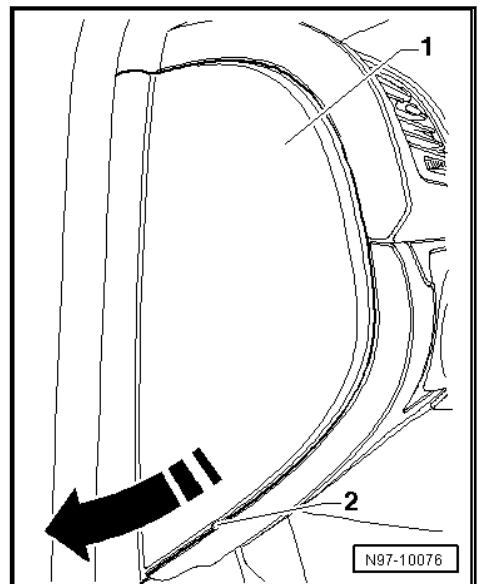
#### Caution

- ◆ When removing and installing components in visible area (switches, covers, trim, etc.), cover by taping the areas at which a prying tool (Trim Removal Wedge -VAS 3409-, screwdriver) will be positioned using commercially available adhesive tape.

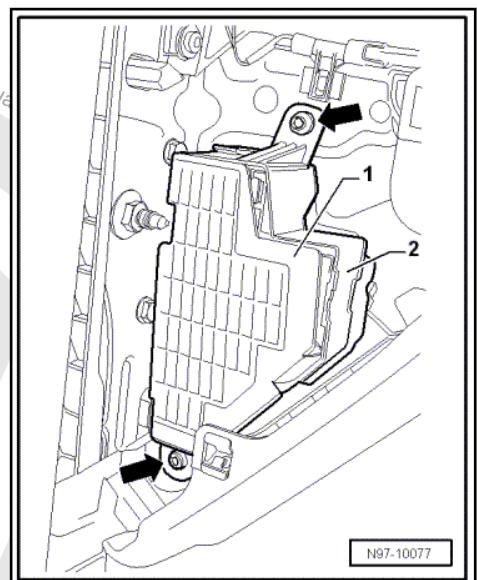
#### Removing

- Disconnecting the Battery -A-. Refer to ⇒ [D5.1.1 isconnecting", page 16](#) .
- Remove the trim on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Remove the side cover -1- from the instrument panel using Trim Removal Wedge -VAS 3409-.





- Remove the fuse assignment card -1- from the fuse panel -2-.



- Remove the screws -arrows- and the fuse panel -1- just enough so that the cables can be guided into the interior.

### Installing

- Connecting the Battery -A-. Refer to [C5.1.2 onnecting](#), [page 17](#).

Install in reverse order of removal.

### Tightening Specifications

- ◆ Screws: 3 Nm



## 5.2 Relay Panel

⇒ C5.2.1 arrier, Under Instrument Panel on Left Side", page 430

⇒ P5.2.2 anel on Vehicle Electrical System Control ModuleJ519 through MY 2009", page 432

⇒ P5.2.3 anel on Vehicle Electrical System Control ModuleJ519 from MY 2010", page 433

### 5.2.1 Relay Carrier, Under Instrument Panel on Left Side

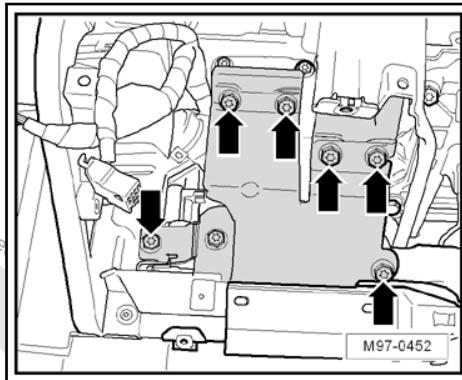


#### Caution

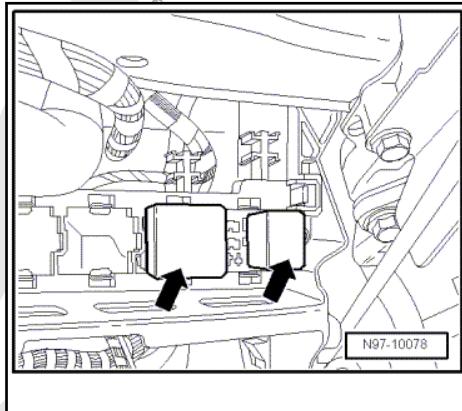
*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ D5.1 Isconnecting and Connecting", page 16 .*

#### Removing

- Disconnecting the Battery -A-. Refer to ⇒ D5.1.1 Isconnecting", page 16 .
- Remove the trim on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Remove the screws from the bracket -arrows-.



- Remove relays -arrows- from the relay panel.

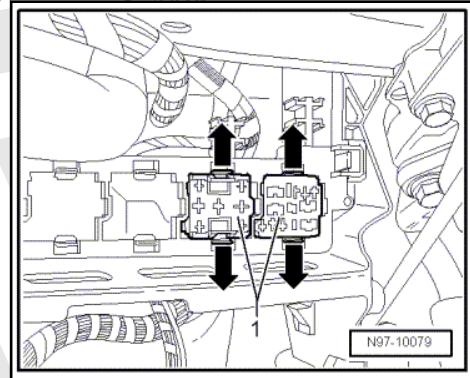


#### Note

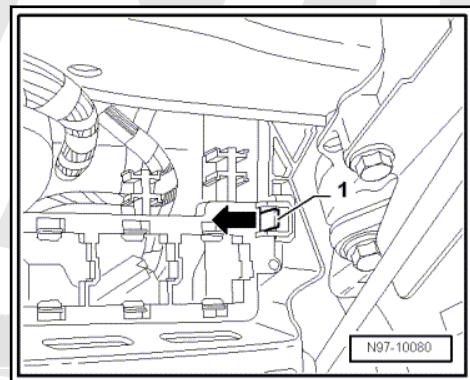
*The number of relays is dependent on vehicle equipment.*



- Unclip the tabs in the direction of the -arrow- and push the connector -1- through the relay panel.



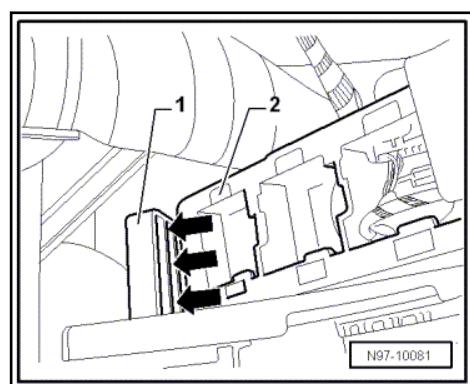
- Release the tab -1- on the relay panel in the direction of the -arrow- and remove the relay panel.



## Installing

Install in reverse order of removal. Note the following:

- Clip the connection into the relay panel.
- Place the relay panel -2- in the guide -1- and then lock it in.



- Connecting the Battery -A-. Refer to [C5.1.2 connecting](#), [page 17](#).

## Tightening Specifications

- ◆ Bracket screws: 4.5 Nm



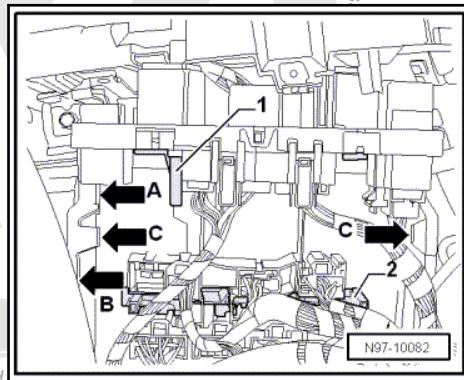
## 5.2.2 Relay Panel on Vehicle Electrical System Control Module -J519- through MY 2009

The Vehicle Electrical System Control Module -J519- and the relay carrier on the Vehicle Electrical System Control Module -J519- on the left side of the instrument panel are one component and cannot be separated.

If the Vehicle Electrical System Control Module -J519- is to be replaced, the work procedure to read out the codes stored in the Vehicle Electrical System Control Module -J519- must always be performed. Refer to [⇒ V5.5.5 Vehicle Electrical System Control Module J519, Coding](#), page 442 .

### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove the trim on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Slide the connector lock -1- onto the Vehicle Electrical System Control Module J519- in the direction of -arrow A-.



- Slide the connector lock -2- on the Vehicle Electrical System Control Module -J519- connector in the direction of -arrow B-.

The Vehicle Electrical System Control Module -J519- connector and the relay connector on the control module can only be disconnected if the connector locks were placed in the "OFF" position.

- Disconnect all of the connectors for the Vehicle Electrical System Control Module -J519- and the relay panel for the Vehicle Electrical System Control Module -J519-.



### Note

*The number of connectors depends on the vehicle equipment.*

- Unclip the Vehicle Electrical System Control Module -J519- and the relay carrier on it from the retainers -arrows C-.
- Pull the Vehicle Electrical System Control Module -J519- and relay panel on the Vehicle Electrical System Control Module -J519- out of the bracket downward opposite the drive direction.

### Installing

Install in reverse order of removal. Note the following:



The securing latch can only be brought into the "CLOSED" position when all connectors are "correctly" connected.

### 5.2.3 Relay Panel on Vehicle Electrical System Control Module -J519- from MY 2010

The relay carrier is clipped under the Vehicle Electrical System Control Module -J519- and can be removed.



#### Caution

*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ D5.1 Disconnecting and Connecting", page 16 .*

#### Removing

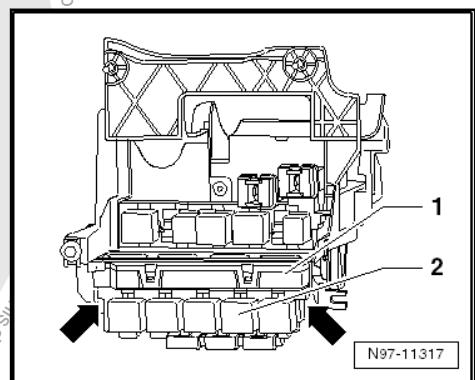
- Disconnecting the Battery -A-. Refer to ⇒ D5.1.1 Disconnecting", page 16 .
- Remove the trim on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Remove the Left Footwell Lamp -W9-. Refer to ⇒ L4.2.7amps", page 364 .



#### Note

*The wiring for the left footwell lamp and the diagnostic socket can remain connected.*

- Remove the knee airbag in the driver footwell. Refer to ⇒ Body Interior; Rep. Gr. 69; Removal and Installation.
- Remove the metal traverse above the knee airbag. Refer to ⇒ Body Interior; Rep. Gr. 69; Removal and Installation.
- Release the tabs -arrows- and remove the relay panel -2- from the Vehicle Electrical System Control Module -J519- -1- opposite the drive direction toward the rear.



- Swivel the relay panel downward and unclip the relay. Be careful of the different wire lengths still connected.

#### Installing

- Connecting the Battery -A-. Refer to ⇒ C5.1.2 onnecting", page 17 .

Install in reverse order.



## 5.3 Left Engine Compartment E-Box

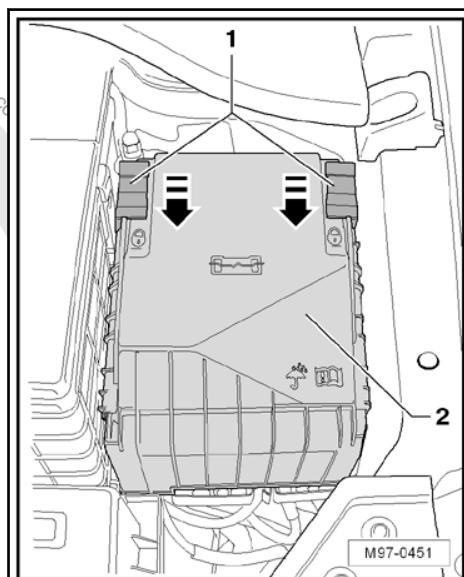


### Caution

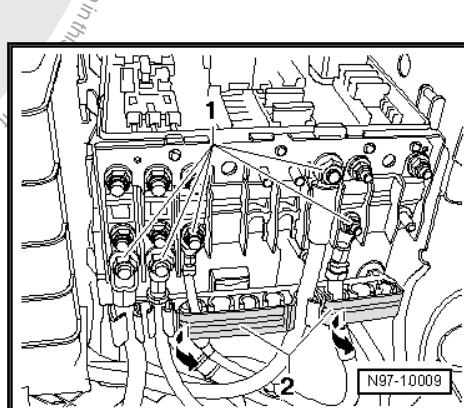
*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to [D5.1 Disconnecting and Connecting](#), page 16.*

#### Removing

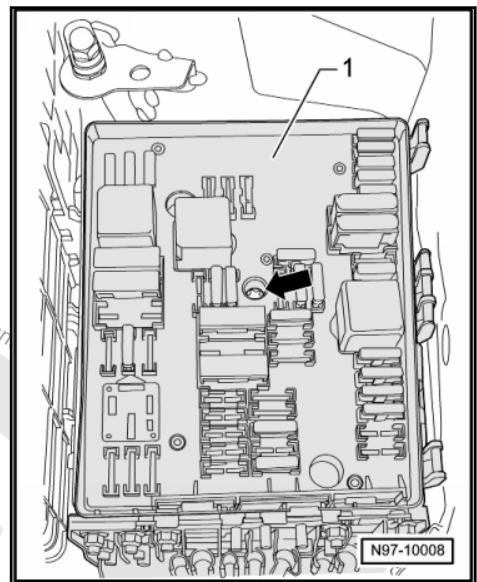
- Disconnecting the Battery -A-. Refer to [D5.1.1 Disconnecting](#), page 16 .
- Slide the securing bracket -1- in the direction of the -arrow- and remove the cover of the E-box -2- upward.



- Remove the nuts -1-.



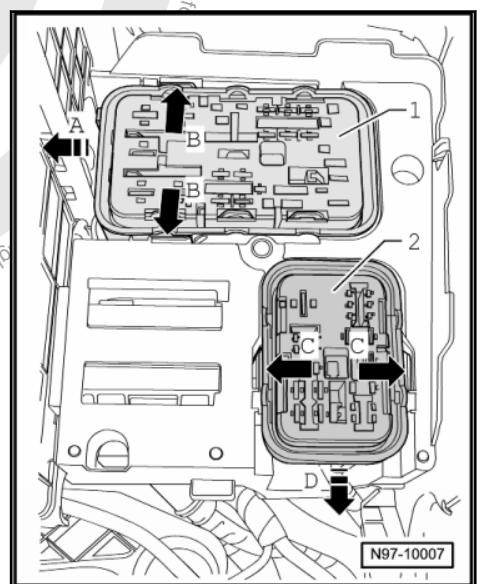
- Open the covers -2- on the E-box -arrows-.
- Remove the wires from the connecting pins.
- Unclip the wires from the wire guides.
- Remove the central screw -arrow- from the E-box -1-.



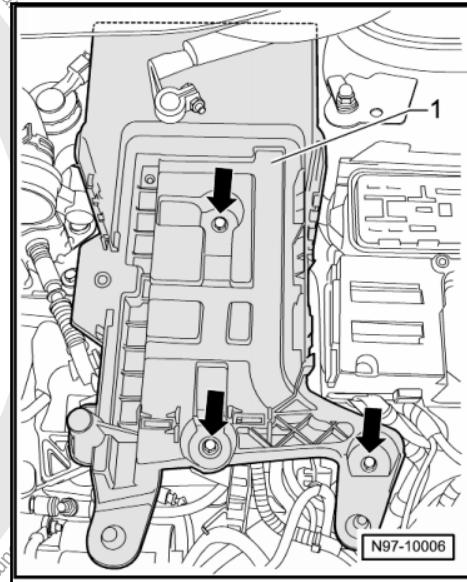
Removing the central mounting bolt -arrow- presses off the E-box -1- upward from the bracket.

- Remove the E-box -1- upward from the bracket.

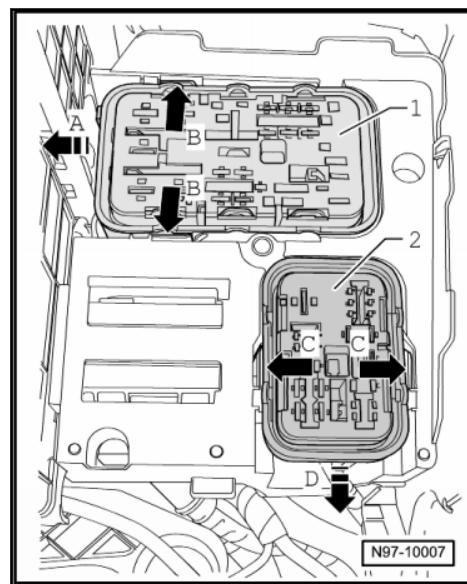
In order to be able to remove the flat terminal housing -1-, the air filter housing (only vehicles with a Diesel engine), the Battery -A-, and the battery carrier must be removed.



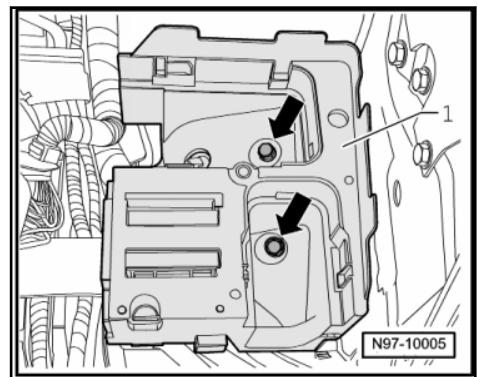
- Remove the Battery -A-. Refer to [O2.1 overview](#), page 5 .
- Remove the bolts -arrows- from the battery tray -1-.



- Remove the battery carrier -1- from the vehicle.
- Press the tabs on the E-box bracket apart -arrows B- and slide the flat terminal housing -1- sideways -arrow A- out of the E-box bracket.



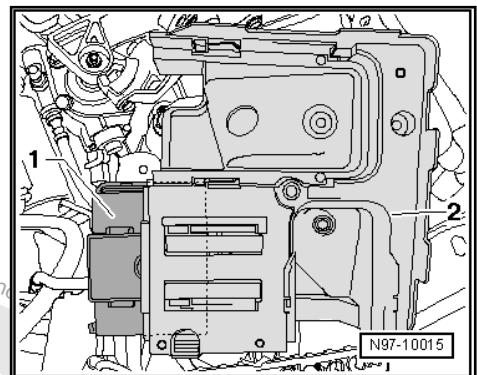
- Press the tabs on the E-box bracket apart -arrows C- and slide the flat terminal housing -2- forward -arrow D- out of the E-box bracket.
- Remove the nuts -arrows- from the E-box bracket -1-.



**Note**

*It depends on vehicle equipment whether an auxiliary relay carrier is installed.*

- Pull E-box bracket -1- upward as far as cable lengths permit.

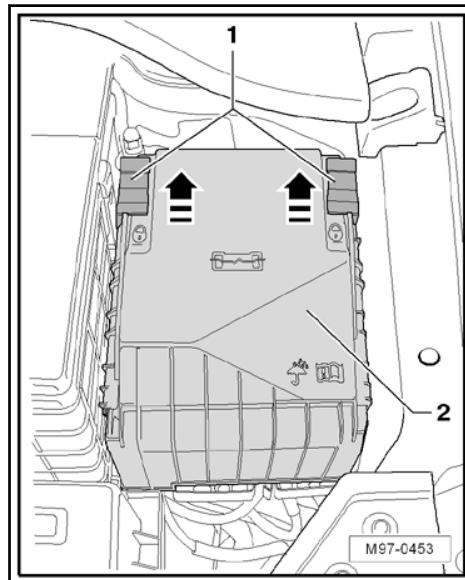


- Unclip the auxiliary relay carrier -1- sideways out of E-box bracket -2-.
- Remove the E-box bracket -2- from the vehicle.

### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specifications.
- Place the cover -2- onto the E-box and slide the securing bracket -1- in the direction of the -arrow- until the cover -2- is engaged.



- Connecting the Battery -A-. Refer to [⇒ C5.1.2 connecting](#), [page 17](#).

#### Tightening Specifications

- ◆ M5 nuts: 4 Nm
- ◆ M6 nuts: 6 Nm

## 5.4 Garage Door Opener Control Module -J530-

The Garage Door Opener Control Module -J530- is found in the Garage Door Opener Control Head -E284- in the sun visor.

- Garage Door Opener Control Module -J530-, removing and installing [⇒ page 380](#).



## 5.5 Vehicle Electrical System Control Module -J519-

- ⇒ [V5.5.1 ehicle Electrical System Control ModuleJ519, through MY 2009", page 439 .](#)
- ⇒ [V5.5.2 ehicle Electrical System Control ModuleJ519, from MY 2010", page 440 .](#)
- ⇒ [t5.5.3 he Vehicle Electrical System Control ModuleJ519 ", page 440 .](#)
- ⇒ [V5.5.4 ehicle Electrical SystemJ519 Output Diagnostic Test Mode", page 441 .](#)
- ⇒ [V5.5.5 ehicle Electrical System Control ModuleJ519, Coding", page 442 .](#)
- ⇒ [W5.5.6 ashier System, Adapting, through MY 2009", page 443 .](#)
- ⇒ [W5.5.7 indow Defroster Switch-Off Time, Adapting, through MY 2009", page 443 .](#)
- ⇒ [R5.5.8 unning Lamps, Coding and Decoding, through MY 2009", page 443 .](#)
- ⇒ [A5.5.9 cknowledgement when Unlocking", page 444 .](#)
- ⇒ [A5.5.10 cknowledgement when Locking, Adapting", page 444 .](#)
- ⇒ [C5.5.11 cyle during One-Touch Lane Change Signaling, Adapting", page 444 .](#)
- ⇒ [U5.5.12 locking when Key Removed, Adapting", page 445 .](#)
- ⇒ [A5.5.13 utomatic Locking at 15 km/h", page 445 .](#)
- ⇒ [L5.5.14 ocking Confirmation, Adapting", page 445 .](#)
- ⇒ [C5.5.15 oming Home Time", page 446 .](#)
- ⇒ [L5.5.16 eaving Home Time", page 446 .](#)
- ⇒ [D5.5.17 oor Opening, Adapting", page 446 .](#)
- ⇒ [M5.5.18 ode, Deactivating", page 447 .](#)
- ⇒ [I5.5.19 llumination Intensity, Adapting", page 447 .](#)
- ⇒ [O5.5.20 eration via Remote Control, Adapting", page 447 .](#)
- ⇒ [A5.5.21 cknowledgment for Locking, Adapting", page 448 .](#)
- ⇒ [C5.5.22 ontrol Key, Adapting", page 448 .](#)
- ⇒ [R5.5.23 ain/Light Recognition SensorG397, Coding", page 448 .](#)
- ⇒ [M5.5.24 onitoring Sensitivity, Adapting", page 449 .](#)

### 5.5.1 Vehicle Electrical System Control Module -J519-, through MY 2009

If the Vehicle Electrical System Control Module -J519- is to be replaced, the work procedure to read out the codes stored in the Vehicle Electrical System Control Module -J519- must always be performed. Refer to ⇒ [V5.5.5 ehicle Electrical System Control ModuleJ519, Coding", page 442 .](#)

#### Removing

The Vehicle Electrical System Control Module -J519- is removed the same way as the relay carrier on it at the left of the



instrument panel. Refer to [⇒ P5.2.2 anel on Vehicle Electrical System Control ModuleJ519 through MY 2009](#), page 432 .

### Installing

The Vehicle Electrical System Control Module -J519- is installed the same way as the relay carrier on it at the left side of the instrument panel. Refer to [⇒ P5.2.2 anel on Vehicle Electrical System Control ModuleJ519 through MY 2009](#), page 432 .

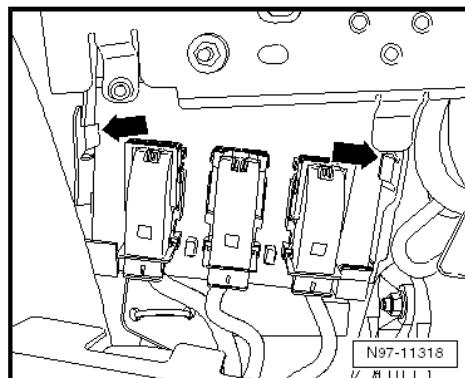
## 5.5.2 Vehicle Electrical System Control Module -J519-, from MY 2010

The relay carrier is clipped under the Vehicle Electrical System Control Module -J519- and can be removed.

If the Vehicle Electrical System Control Module -J519- is to be replaced, the work procedure "replace the Vehicle Electrical System Control Module" must always be performed to read out the codes stored within it, refer to [⇒ t5.5.3 he Vehicle Electrical System Control ModuleJ519](#) , page 440 .

### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove the relay panel from the Vehicle Electrical System Control Module -J519-. Refer to [⇒ P5.2.3 anel on Vehicle Electrical System Control ModuleJ519 from MY 2010](#), page 433 .
- Press the catches -arrows- and swivel the Vehicle Electrical System Control Module -J519- downward.



- Pull the Vehicle Electrical System Control Module -J519- downward and opposite the drive direction and remove it from the bracket.
- Disconnect the connectors.

### Installing

Install in reverse order of removal. Note the following:

- Insert the Vehicle Electrical System Control Module -J519- first with the back of the module into the bracket and push it up until it audibly latches.

## 5.5.3 Replace the Vehicle Electrical System Control Module -J519-

The work procedure "replace the Vehicle Electrical System Control Module" contains the following scope of work:

- ◆ If a new Vehicle Electrical System Control Module -J519- is installed, it must be coded online.



- ◆ The factory mode in the Vehicle Electrical System Control Module -J519- is deactivated.
- ◆ All of the remote keys are programmed again.



#### Note

The procedure to "replace the Vehicle Electrical System Control Module" can only be performed with the Vehicle Diagnostic Tester in the "guided fault finding" function.

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions
  - ◆ Replace the Vehicle Electrical System Control Module

#### 5.5.4 Vehicle Electrical System -J519- Output Diagnostic Test Mode



#### Note

It depends on the vehicle equipment whether the components listed below can be checked.

Check the following components and functions using the output diagnostic test from the Vehicle Electrical System Control Module -J519-:

- ◆ Left Parking Lamp -M1-, Right Parking Lamp -M3-, Left Tail Lamp -M4- and Right Tail Lamp -M2-
- ◆ Left Low Beam Headlamp Bulb -M29-/Right Low Beam Headlamp Bulb -M31-
- ◆ Left Daytime Running Lamp Bulb -L174-/Right Daytime Running Lamp Bulb -L175-
- ◆ Left High Beam Headlamp Bulb -M30-/Right High Beam Headlamp Bulb -M32-
- ◆ Left Low Beam Reflector Motor -V294-/Right Low Beam Reflector Motor -V295-
- ◆ Left Front Fog Lamp Bulb -L22-/Right Front Fog Lamp Bulb -L23-
- ◆ Right Back-Up Lamp Bulb -M17-/Left Back-Up Lamp Bulb -M16-
- ◆ Left Brake Lamp Bulb -M9-/Right Brake Lamp Bulb -M10-/High-Mounted Brake Lamp Bulb -M25-
- ◆ Left Rear Fog Light -L46-/Right Rear Fog Light -L47-



- ◆ Left Front Turn Signal Bulb -M5-/Left Rear Turn Signal Bulb -M6-
- ◆ Right Front Turn Signal Bulb -M7-/Right Rear Turn Signal Bulb -M8-
- ◆ License Plate Lamp -X-
- ◆ Interior light dimmed
- ◆ Instrument illumination of all buttons and switches and of instrument cluster
- ◆ Power Supply Relay (terminal 30, B+) -J317-
- ◆ LED heated rear window/heated rear window
- ◆ LED for heated exterior mirror/heated exterior mirror
- ◆ Enabling - Sunroof
- ◆ Enabling of seat heater
- ◆ Fuel Pump Relay -J17-
- ◆ Headlamp Washer System Relay -J39-/Headlamp Washer Pump -V11-
- ◆ Front windshield wiper
- ◆ Wiper module reversing point
- ◆ Windshield Washer Pump -V5-
- ◆ Horn Relay -J4-, High Tone Horn -H2-/Low Tone Horn -H7-
- ◆ Left Cornering Lamp Bulb -L148-/Right Cornering Lamp Bulb -L149-
- ◆ Heated Windshield -Z2-
- ◆ Luggage compartment lock

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions
  - ◆ Output Diagnostic Test Mode (D) of Vehicle Electrical System Control Module

### 5.5.5     Vehicle Electrical System Control Module -J519-, Coding

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body



- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 09 - Vehicle Electrical System Control Module
- ◆ Vehicle electrical system control module functions
- ◆ Coding the Vehicle Electrical System Control Module online

### 5.5.6 Headlamp Washer System, Adapting, through MY 2009

#### Procedure

The “active time” of headlamp cleaning system can be adjusted variably between 0 seconds and 12.75 seconds.

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions
  - ◆ Headlamp Washer System, Adapting

### 5.5.7 Rear Window Defroster Switch-Off Time, Adapting, through MY 2009

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Vehicle electrical system control module
  - ◆ Functions
  - ◆ Adapt the shut-off time for the rear window defroster.

### 5.5.8 Daytime Running Lamps, Coding and Decoding, through MY 2009

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment



- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 09 - Vehicle Electrical System Control Module
- ◆ Vehicle electrical system control module functions
- ◆ Daytime Running Lamps, Coding and Decoding

### 5.5.9 Acoustic Acknowledgement when Unlocking

Refer to Owner's Manual.

High beams can be switched on or off with automatic head-lamps.

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions
  - ◆ Acoustic acknowledgement when unlocking

### 5.5.10 Acoustic Acknowledgement when Locking, Adapting

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions
  - ◆ Acoustic acknowledgement when locking

### 5.5.11 Blinking Cycle during One-Touch Lane Change Signaling, Adapting

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment



- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 09 - Vehicle Electrical System Control Module
- ◆ Vehicle electrical system control module functions
- ◆ Blinking Cycle during One-Touch Lane Change Signaling, Adapting

### 5.5.12 Automatic Unlocking when Key Removed, Adapting

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions
  - ◆ Automatic unlocking when ignition key is removed

### 5.5.13 Programming Automatic Locking at 15 km/h

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions
  - ◆ Programming Automatic Locking at 15 km/h

### 5.5.14 Comfort Locking Confirmation, Adapting

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module



- ◆ Vehicle electrical system control module functions
- ◆ Confirmation, comfort closing

### 5.5.15 Adapting Coming Home Time

Coming Home Function: how long the lamp should stay on when leaving the vehicle.

Illumination time of Coming Home function can be set variably between 0 and 120 seconds.

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions
  - ◆ Adapting Coming Home Time

### 5.5.16 Adapting Leaving Home Time

Leaving Home: how long the lamp should stay on when opening the vehicle.

Illumination time of Leaving Home function can be set variably between 0 and 120 seconds.

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions
  - ◆ Adapting Leaving Home Time

### 5.5.17 Single Door Opening, Adapting

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems



- ◆ 09 - Vehicle Electrical System Control Module
- ◆ Vehicle electrical system control module functions
- ◆ Single Door Opening, Adapting

### 5.5.18 Factory Mode, Deactivating

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions
  - ◆ Factory mode, deactivating

### 5.5.19 Footwell Illumination Intensity, Adapting

Footwell illumination brightness is adjustable in variable levels.

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions
  - ◆ Footwell illumination brightness, adapting

### 5.5.20 Comfort Operation via Remote Control, Adapting

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions



- ◆ Adapt the Convenience feature for the window regulator via the remote control

### 5.5.21 Visual Acknowledgment for Locking, Adapting

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions
  - ◆ Visual acknowledgement when locking

### 5.5.22 Remote Control Key, Adapting

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions
  - ◆ Remote Control Key, Adapting

### 5.5.23 Rain/Light Recognition Sensor -G397-, Coding

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions
  - ◆ Rain/Light Recognition Sensor, coding



## 5.5.24 Interior Monitoring Sensitivity, Adapting

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 09 - Vehicle Electrical System Control Module
  - ◆ Vehicle electrical system control module functions
  - ◆ Interior monitoring sensitivity, adapting

## 5.6 Data Bus On Board Diagnostic Interface -J533-

⇒ [D5.6.1 ata Bus On Board Diagnostic InterfaceJ533 ", page 449](#)

⇒ [D5.6.2 ata Bus On Board Diagnostic InterfaceJ533 ", page 450](#)

⇒ [D5.6.3 ata Bus On Board Diagnostic InterfaceJ533, Coding", page 450](#)

⇒ [A5.6.4 daptering, Intended Installation List", page 450](#)

## 5.6.1 Data Bus On Board Diagnostic Interface -J533-

The procedure “replace the Data Bus OBED interface” contains the following work to be completed:

- ◆ If a new Data Bus On Board Diagnostic Interface -J533- is installed, it must be coded online.



### Note

*The procedure to “replace the Data Bus OBED interface” can only be performed with the Vehicle Diagnostic Tester in the “guided fault finding” function.*

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 19 - Data Bus on board diagnostic interface J533
  - ◆ Functions of the Data Bus On Board Diagnostic Interface
  - ◆ Replace control module



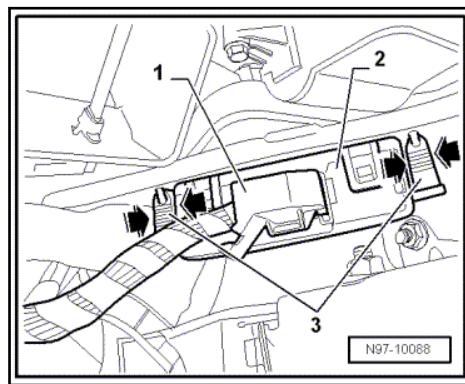
## 5.6.2 Data Bus On Board Diagnostic Interface -J533-

The Data Bus On Board Diagnostic Interface -J533- is located in the right side of the driver footwell next to the steering column.

The “replace the Data Bus OBED interface” procedure must always be performed before the Data Bus On Board Diagnostic Interface -J533- is removed, refer to [⇒ D5.6.1 ata Bus On Board Diagnostic InterfaceJ533](#), page 449 .

### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove the trim on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Disengage the connector -1- and disconnect.



- Press the tabs -3- together -arrows- and pull them out of the holes.

### Installing

Install in reverse order of removal.

## 5.6.3 Data Bus On Board Diagnostic Interface -J533-, Coding

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On-Board Diagnostic (OBD) capable systems
  - ◆ 19 - Data Bus on board diagnostic interface J533
  - ◆ Functions of the Data Bus On Board Diagnostic Interface
  - ◆ Control module, coding

## 5.6.4 CAN-Bus, Adapting, Intended Installation List

With this test, the status of the connection from the Data Bus OBED interface -J533- to another CAN-Bus system is checked.



## Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 19 - Data Bus on board diagnostic interface J533
  - ◆ Functions of the Data Bus On Board Diagnostic Interface
  - ◆ Adapt the intended installation list control module

## 5.7 Comfort System Central Control Module -J393-

⇒ [C5.7.1 omfort System Central Control ModuleJ393 ", page 451](#)

⇒ [C5.7.2 omfort System Central Control ModuleJ393, Replacing and Coding, through MY 2009", page 453](#)

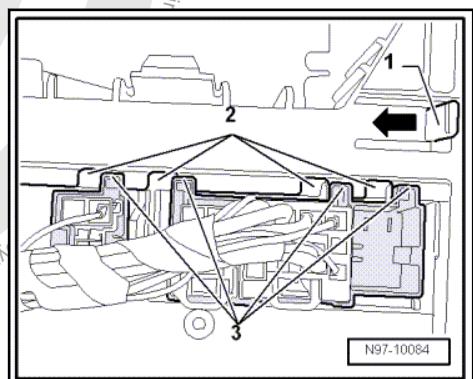
⇒ [C5.7.3 omfort System Central Control ModuleJ393, Adapting Components, through MY 2009", page 454](#)

### 5.7.1 Comfort System Central Control Module -J393-

The “replace and code the Comfort System Central Control Module” procedure must always be performed to read the codes that are stored in the module before the Comfort System Central Control Module -J393- is removed, refer to ⇒ [C5.7.2 omfort System Central Control ModuleJ393, Replacing and Coding, through MY 2009", page 453](#) .

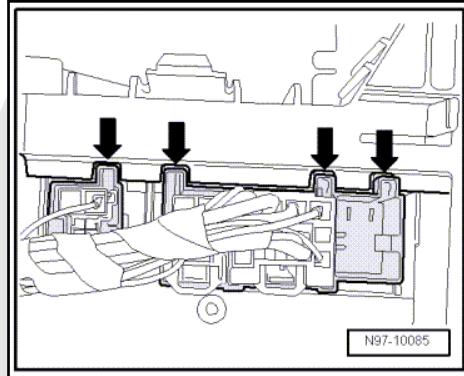
#### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68; Removal and Installation.
- Pull the tab -1- on the bracket for the Comfort System Central Control Module -J393- in the direction of the -arrow- and slide the Comfort System Central Control Module -J393- until the holes -2- lines up over the holes -3-.





The connectors can only be disengaged and disconnected when the recesses -arrows- of the connectors and bracket line up exactly.

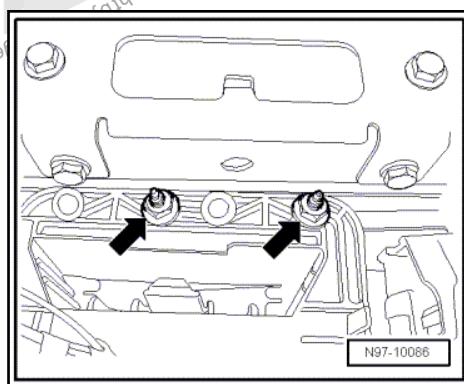


- Disconnect the connectors.

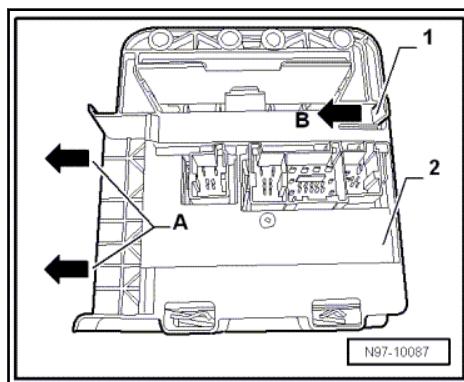
**Note**

*The number of connectors depends on the vehicle equipment.*

- Remove the nuts -arrows-.



- Remove the bracket and the Comfort System Central Control Module -J393-.
- Pull the tab -1- in the direction of -arrow B- and slide the Comfort System Central Control Module -J393- -2- out of the bracket in the direction of -arrow A-.

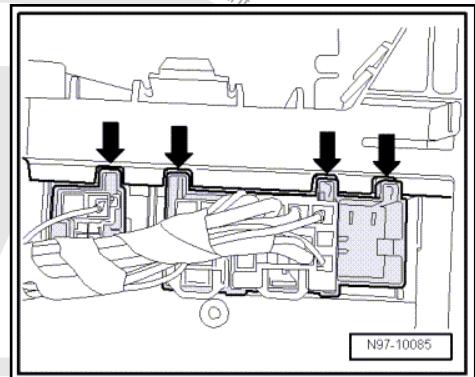


## Installing

Install in reverse order of removal. Note the following:



Connectors can only be released and disconnected when the openings -arrows- on the connectors and on the bracket line up exactly.



After installing a new Comfort System Central Control Module -J393-, it must be coded ⇒ [C5.7.2 Comfort System Central Control Module J393, Replacing and Coding, through MY 2009](#), page [453](#).

#### Tightening Specifications

- ◆ Nuts: 4 Nm

### 5.7.2 Comfort System Central Control Module -J393-, Replacing and Coding, through MY 2009

The “replace the Comfort System Central Control Module” procedure requires the following work to be completed:

- ◆ If a new Comfort System Central Control Module -J393- is installed, it must be coded online.



#### Note

*The procedure to “replace the Comfort System Central Control Module” can only be performed with the Vehicle Diagnostic Tester in the “guided fault finding” function.*

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Comfort system
  - ◆ Functions of central control module for comfort system
  - ◆ Replace and code the Comfort System Central Control Module



## 5.7.3 Comfort System Central Control Module -J393-, Adapting Components, through MY 2009

The following functions can be adapted:

- ◆ Activating/deactivating "individual door opening"
- ◆ Activating/deactivating "automatic locking at >15 Km/h"
- ◆ Activating/deactivating "automatic unlocking when removing ignition key"
- ◆ Activating/deactivating "country setting for intelligent alarm horn"
- ◆ Activating/deactivating "battery monitoring (sounder)"
- ◆ Activating/deactivating "comfort operation via remote control"
- ◆ Activating/deactivating "anti-theft warning system - alarm delay when opening driver door"
- ◆ "Sensitivity of inclination sensor"
- ◆ "Sensitivity of interior monitoring"

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Comfort system
  - ◆ Functions of central control module for comfort system

## 5.8 Driver Door Control Module -J386-

- ⇒ [D5.8.1 river Door Control ModuleJ386 ", page 454](#)
- ⇒ [D5.8.2 river Door Control ModuleJ386, Coding", page 454](#)
- ⇒ [D5.8.3 river Door Control ModuleJ386, Adapting", page 455](#)

### 5.8.1 Driver Door Control Module -J386-

Removing and installing the Driver Door Control Module -J386-. Refer to ⇒ Body Exterior; Rep. Gr. 64; Removal and Installation.

If the Door Control Module -J386- or the Driver Side Window Regulator Motor -V147- are replaced, then the "adapt the driver side door control module" procedure (refer to ⇒ [D5.8.3 river Door Control ModuleJ386, Adapting", page 455](#)) and the "code the driver side door control module" (refer to ⇒ [D5.8.2 river Door Control ModuleJ386, Coding", page 454](#)) procedure must be performed.

### 5.8.2 Driver Door Control Module -J386-, Coding

#### Procedure

- Connect the Vehicle Diagnostic Tester.



- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 42 - Driver side door electronics J386
  - ◆ Driver side door control module, functions
  - ◆ Control module, coding

### 5.8.3      **Driver Door Control Module -J386-, Adapting**

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 42 - Driver side door electronics J386
  - ◆ Driver side door control module, functions
  - ◆ Adapt the driver door control module

## 5.9            **Front Passenger Door Control Module -J387-**

**⇒ F5.9.1 Front Passenger Door Control Module J387 ”, page 455**

**⇒ F5.9.2 Front Passenger Door Control Module J387, Coding”, page 455**

**⇒ F5.9.3 Front Passenger Door Control Module J387, Adapting”, page 456**

### 5.9.1          **Front Passenger Door Control Module -J387-**

Removal and Installation the Front Passenger Door Control Module -J387-. Refer to ⇒ Body Exterior; Rep. Gr. 64; Removal and Installation.

If the Front Passenger Door Control Module -J387- or the Front Passenger Side Window Regulator Motor -V148- are replaced, then the “adapt the front passenger side door control module” procedure (refer to ⇒ **F5.9.3 Front Passenger Door Control Module J387, Adapting”, page 456**) and the “code the front passenger side door control module” ⇒ **F5.9.2 Front Passenger Door Control Module J387, Coding”, page 455** procedure must be performed.

### 5.9.2          **Front Passenger Door Control Module -J387-, Coding**

#### Procedure

- Connect the Vehicle Diagnostic Tester.



- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 52 - Front passenger side door electronics J387
  - ◆ Front passenger's door control module, functions
  - ◆ Control module, coding

### 5.9.3 Front Passenger Door Control Module -J387-, Adapting

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 52 - Front passenger side door electronics J387
  - ◆ Front passenger's door control module, functions
  - ◆ Adapt the front passenger side door control module

### 5.10 Left Rear Door Control Module -J388-

⇒ [L5.10.1 Left Rear Door Control Module J388](#), page 456

⇒ [L5.10.2 Left Rear Door Control Module J388, Coding](#), page 456

#### 5.10.1 Left Rear Door Control Module -J388-

Removing and installing the Left Rear Door Control Module -J388-. Refer to ⇒ Body Exterior; Rep. Gr. 64; Removal and Installation.

If Left Rear Door Control Module -J388- or Left Rear Window Regulator Motor -V26- is to be replaced, the work procedure »Code left rear door control module« must then be performed. Refer to ⇒ [L5.10.2 Left Rear Door Control Module J388, Coding](#), page 456 .

#### 5.10.2 Left Rear Door Control Module -J388-, Coding

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures



- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ 62 - Rear left door electronics J388
- ◆ Left Rear Door Control Module, functions
- ◆ Control module, coding

## 5.11 Right Rear Door Control Module -J389-

⇒ [R5.11.1 Right Rear Door Control Module J389 ", page 457](#)

⇒ [R5.11.2 Right Rear Door Control Module J389, Coding", page 457](#)

### 5.11.1 Right Rear Door Control Module -J389-

Removing and installing the Right Rear Door Control Module -J389-. Refer to ⇒ Body Exterior; Rep. Gr. 64; Removal and Installation.

In the event that the Right Rear Door Control Module -J389- or Right Rear Window Regulator Motor -V27- needs to be replaced, always perform the »Right Rear Door Control Module«, Coding program function. Refer to ⇒ [R5.11.2 Right Rear Door Control Module J389, Coding", page 457](#).

### 5.11.2 Right Rear Door Control Module -J389-, Coding

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **[Go TO]** button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Body repair procedures
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ 72 - Right rear door electronics J389
  - ◆ Right rear door control module, functions
  - ◆ Control module, coding

## 5.12 Wiring Harness

#### Special tools and workshop equipment required

- ◆ Hose Clamps - Up To 25mm -3094-
- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-
- ◆ Shop Crane - Drip Tray -VAS 6208-
- ◆ Spring-type clip pliers -VAS 6362-

#### Conditions

- The ignition is switched off.
- The engine must be cold.

#### Removing

- Check the DTC memory for all control modules before removal. Refer to the Vehicle Diagnostic Tester "Vehicle OBD".



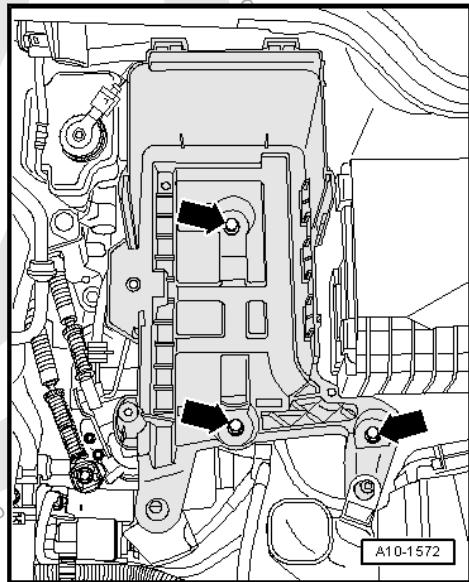
- Remove the engine cover. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 15; Removal and Installation.
- Remove the Battery -A-. Refer to [⇒ P02.1 overview](#), page 5 .



**Caution**

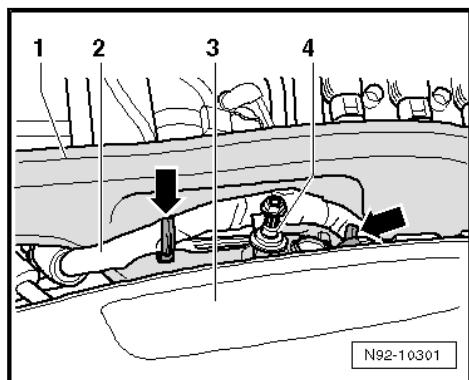
*Always follow the instructions regarding disconnecting and connecting the Battery -A-. Refer to ⇒ D5.1 disconnecting and Connecting, page 16 .*

- Remove the battery tray -arrows-.



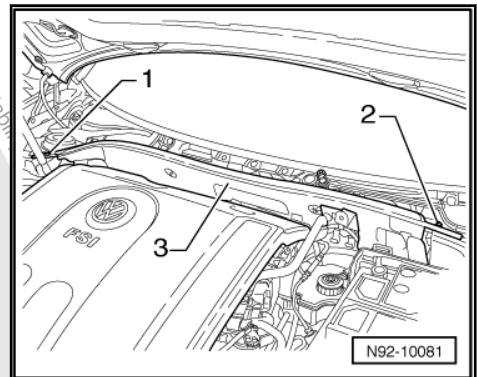
- Remove the windshield wiper arms and plenum chamber cover. Refer to ⇒ W4.2 Windshield Wiper MotorV , page 87 .
- Remove the plenum chamber bulkhead.

The following illustration shows the wiring harness as viewed from the windshield with the hood open.

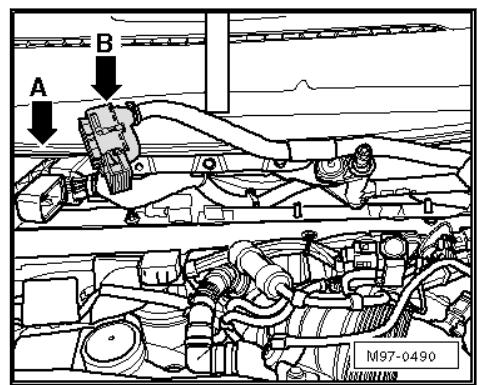


- 1 - Plenum chamber bulkhead
- 2 - Wiring Harness
- 3 - Windshield

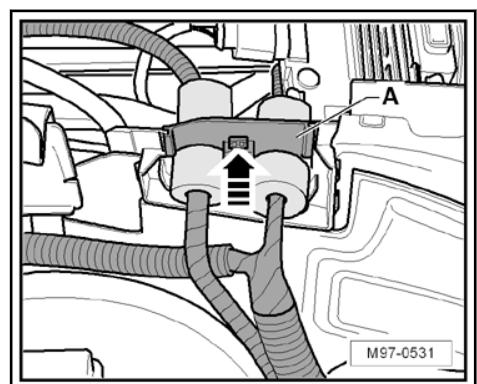
- Remove the wiring harness -2- from the mounts -arrows-.
- Remove the screw -1- and nut -2- from the plenum chamber bulkhead -3-.



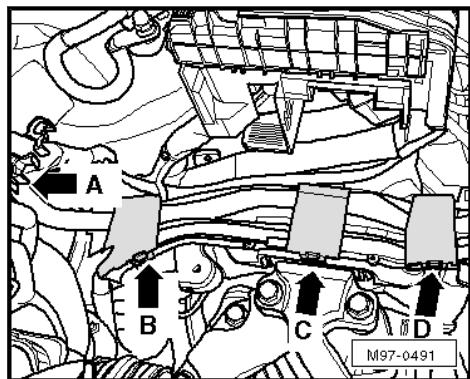
- Remove the plenum chamber bulkhead -3- upward from the vehicle.
- Remove the Engine Control Module -J623-. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23; Removal and Installation.
- Remove the connector -arrow B- on the Engine Control Module -J623- -arrow A-.



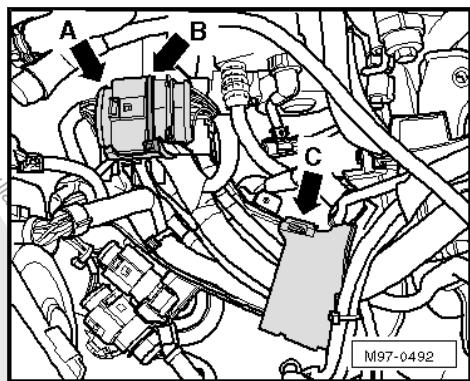
- Release the wiring harness guide -A- at the retaining tab -arrow-.



- Pull the wiring harness guide -A- upward.
- Remove the wiring harness from the bracket -arrow A-.



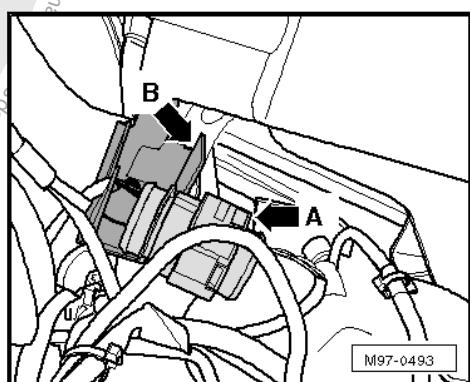
- Unclip the wiring guide near the transmission mount  
-arrows B through D-.
- Disconnect the cable tie on the black 14-pin connector at coupling 1 in the left of the engine compartment -arrow B- and remove the connector from the bracket.



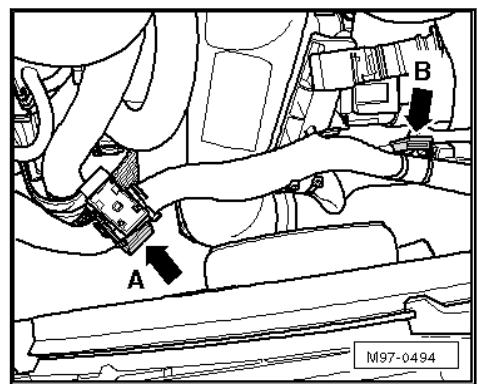
Disconnect the black 14-pin connector at coupling 1 in the left of the engine compartment -arrow A-.

Unclip the cable guide -arrow C-.

Remove the connector (10-pin, close to the left headlamp -arrow A-) from the bracket -arrow B- and then disconnect it.



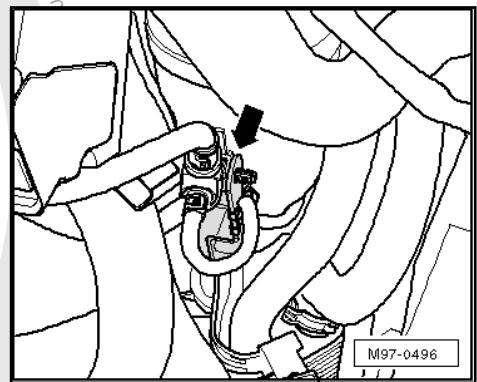
- Release the wiring harness connecting base at the Starter  
-B- -arrow B-.



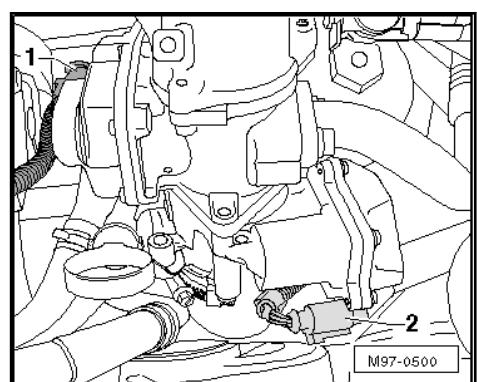
- Release the wiring harness connecting base on the bracket for the oil filter bracket -arrow A-.

Component location [Item 3 \(page 422\)](#)

- Pull the wiring harness carefully off the brackets.
- Release the wiring harness clip and remove it from the bracket on the oil filter bracket -arrow-.

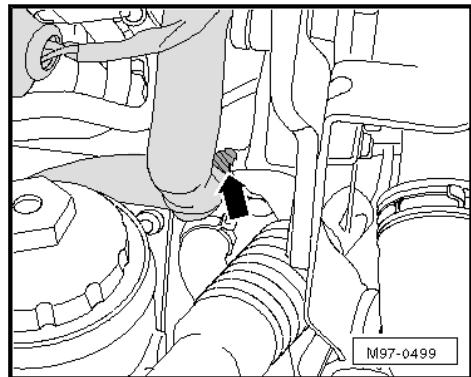


- Disconnect the connector from the EGR Vacuum Regulator Solenoid Valve -N18- -1- and Throttle Valve Control Module -J338- -2-.

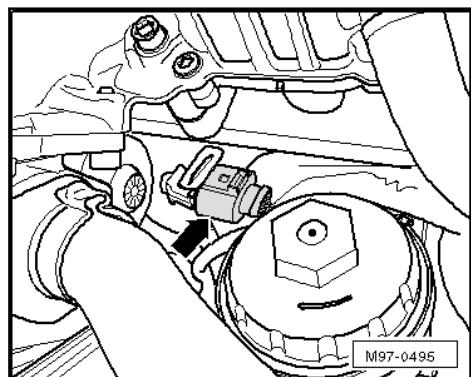


Throttle Valve Control Module -J338- installation location [Item 2 \(page 422\)](#)

- Loosen the clip near the oil filter bracket -arrow-.

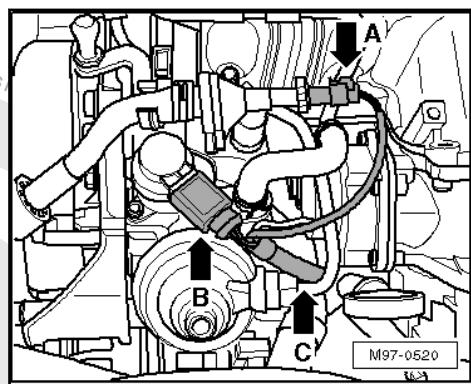


- Disconnect the connector from the Camshaft Position Sensor -G40- -arrow-.



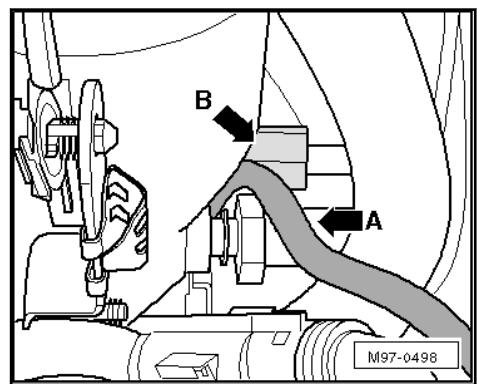
Component location [Item 7 \(page 422\)](#)

- Disconnect the connector from the Fuel Temperature Sensor -G81- -1- and Fuel Metering Valve -N290- on the fuel high pressure pump -2-.



Fuel Metering Valve -N290- installation location [Item 7 \(page 417\)](#).

- Pay attention to the wiring guide.
- Remove the wiring harness.
- Disconnect the connector from the Oil Pressure Switch -F1- -arrow A-.

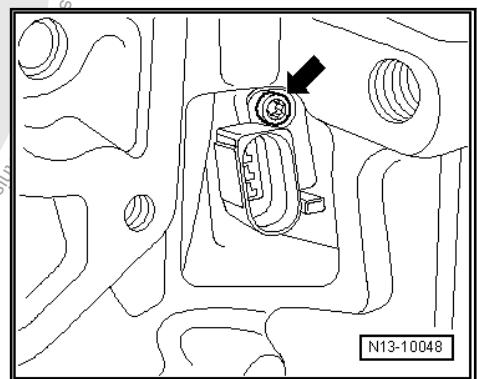


Component location ⇒ [Item 4 \(page 422\)](#)

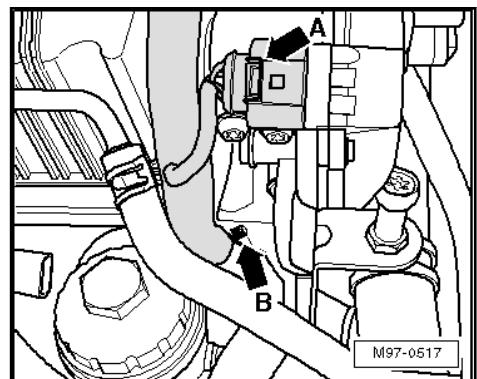


**Note**  
*It is necessary to remove and install the oil filter bracket in order to disconnect the connector from the Engine Speed Sensor -G28-.*

- Oil Filter Bracket, Removal and Installation. Refer to ⇒ Rep. Gr. 17.
- Disconnect the connector from the Engine Speed Sensor -G28- -arrow-.

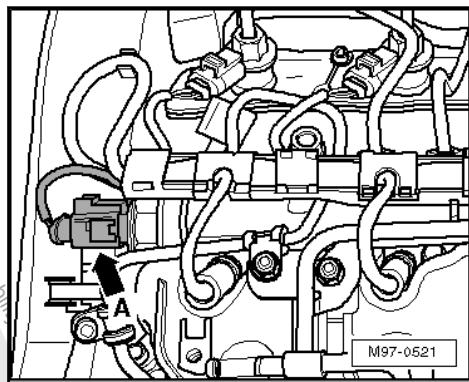


- Disconnect the connector from the Intake Flap Motor -V157- -arrow A-.

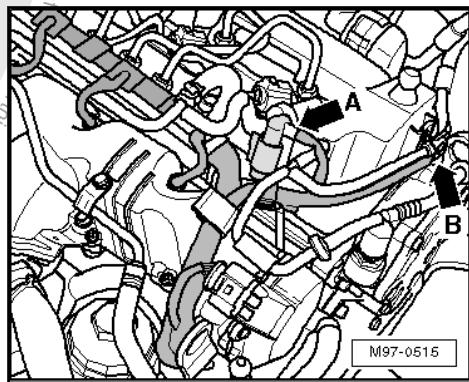


Intake Flap Motor -V157- installation location ⇒ [Item 1 \(page 422\)](#).

- Remove the wiring harness from the bracket -arrow B-.
- Disconnect the connector from the Fuel Pressure Sensor -G247- -arrow A-.

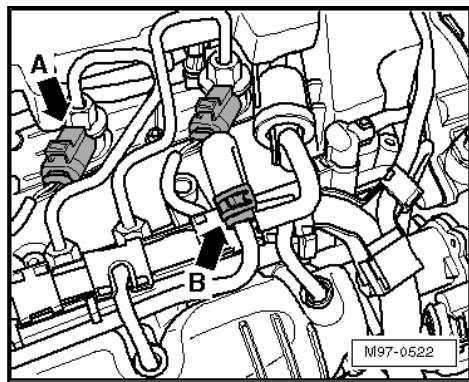


- Remove the wiring from the bracket -arrow B-.
- Remove the nut from the fuel line -arrow D-.
- Remove the cable guide from the fuel rail (high pressure reservoir) -arrow C-.
- Disconnect the connector from the Fuel Pressure Regulator Valve -N276- -arrow A-.



#### Component location [⇒ Item 5 \(page 417\)](#)

- Disconnect the connector from all fuel injectors -A-.



#### Injection unit installation locations [⇒ Item 1 \(page 417\)](#)

- Open the spring clamp -arrow B- using Hose Clip Pliers -VAS 6362- and remove the line on the fuel rail (high pressure reservoir).
- Remove the line -arrow C-.
- Clean the return line connection on the fuel injectors before removing.
- Dry the return line connections.



- Disconnect the connectors from all glow plugs.

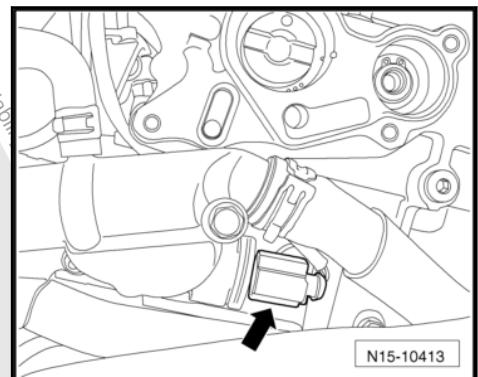


**Caution**

*Follow the procedure for »Glow Plug Connectors, Removal and Installation« exactly [⇒ page 418](#).*

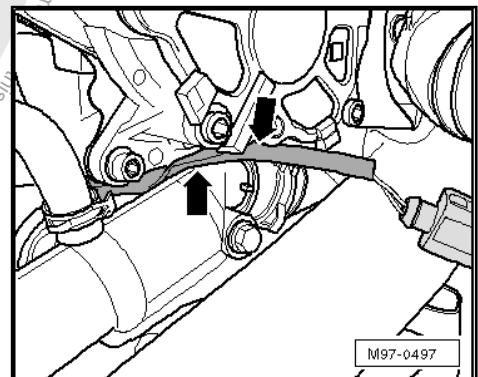
Glow plug connector installation locations [⇒ Item 8 \(page 417\)](#).

- Remove the wiring harness and wiring guide from the fuel rail and guide the wiring harness out
- Disconnect the connector -arrow- from the Engine Coolant Temperature Sensor -G62-.

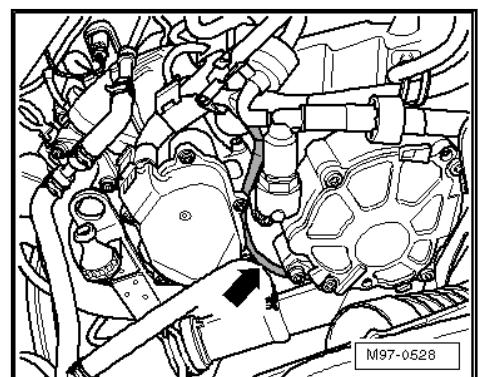


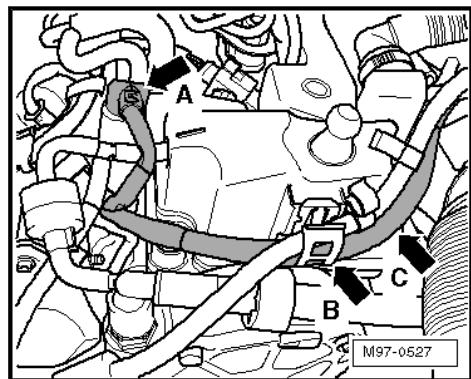
Component location [⇒ Item 7 \(page 421\)](#)

Guide the wire out -arrows-.



The illustration shows the Engine Coolant Temperature Sensor -G62- wiring harness -arrow-.



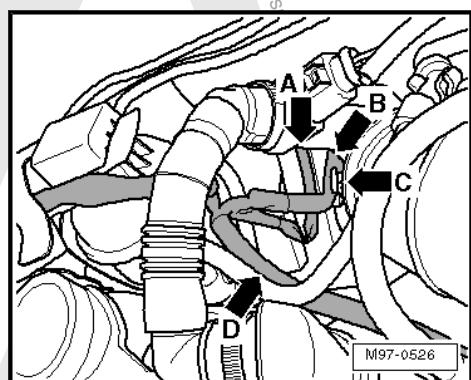


-Arrow C- shows the wiring harness to the following components:

- ◆ Exhaust Pressure Sensor 2 -G451-
- ◆ Charge Pressure Actuator Position Sensor -G581-
- ◆ Valve 2 for EGR -N213-
- ◆ EGR Temperature Sensor -G98-

- Remove the wiring harness from the bracket -arrow B-.

-Arrow D- Wiring harness from the »bracket on the cylinder head cover« [⇒ Fig. " ", page 465](#).

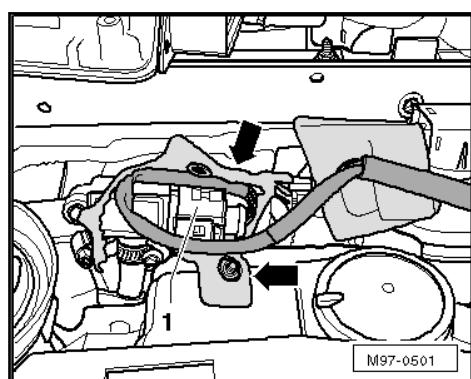


-Arrow A- Wiring harness to the EGR Temperature Sensor -G98-.

-Arrow B- Wiring harness to the Valve 2 for EGR -N213-.

-Arrow C- Bracket for the Valve 2 for EGR -N213- wire.

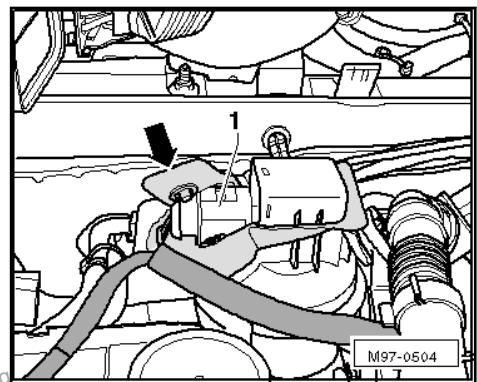
- Remove the heat shield -arrows- and disconnect the connector from Exhaust Pressure Sensor 2 -G451- -1-.



Installation location [⇒ Item 2 \(page 421\)](#)

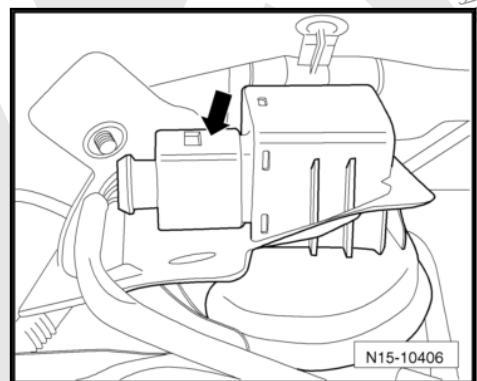


- Install the heat shield -arrow-.

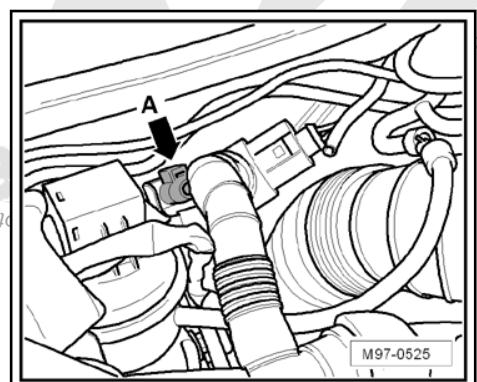


Installation location [⇒ Item 3 \(page 417\)](#)

- Disconnect the connector from the Charge Pressure Actuator Position Sensor -G581- -arrow- on the turbocharger vacuum diaphragm and guide the wire out of the mounts.

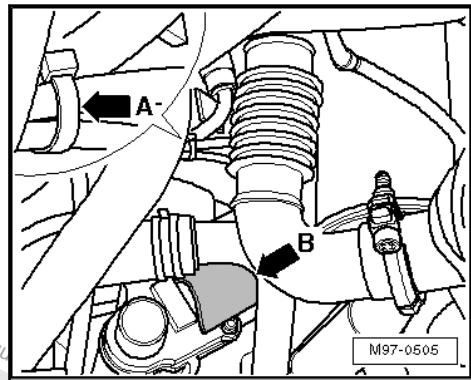


- Disconnect the connector from the EGR Temperature Sensor -G98- -arrow A- and guide the wire out.



EGR Temperature Sensor -G98- [⇒ Item 1 \(page 421\)](#) connector installation location.

- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50; Removal and Installation.



- Assembly Overview, the vehicle from underneath



*Check the wiring routing and the heat shield location!*

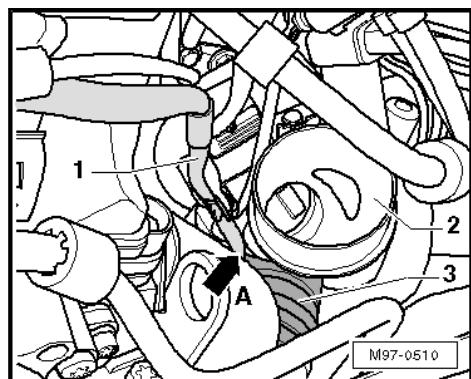
Installation position Valve 2 for EGR -N213- ⇒ [Item 4 \(page 421\)](#)

- Remove the heat shield -arrow B- and slide the heat shield off the connector.
- Disconnect the connector from valve 2 for EGR -N213-.
- Cut the cable tie -arrow A-.
- Engine compartment assembly overview:
- Remove the intake hose. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 23; Removal and Installation.



*Check the wiring routing before guiding the wire out!*

- Carefully guide the wire -1- out between the turbocharger intake scoop -2- and the pre-heating hose -3- -arrow A-.



- Remove the entire engine wiring harness carefully from the engine compartment.

## Installing

Install in reverse order of removal. Note the following:



### Caution

*Follow the procedure for »Glow Plug Connectors, Removal and Installation« exactly ⇒ [page 418](#).*

*Make sure all of the connectors are seated securely.*

*Return the heat insulation to the original locations ⇒ [page 423](#).*

*Replace all self-locking nuts, seals, gaskets and clamps.*

*Secure hose connections with spring clamp.*

*Install spring clamps with Spring Clamp Pliers -VAS 6362- or Hose Clamp Pliers -VAS 6340-.*

*Observe the instructions. Refer to ⇒ [12.2 nformation](#), page [422](#).*

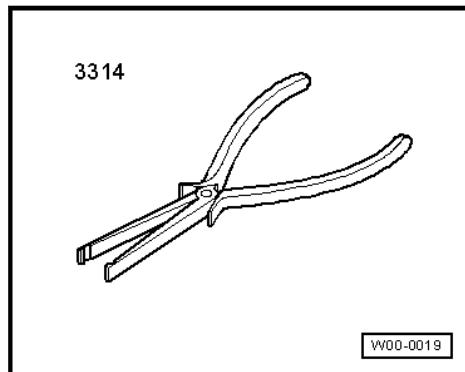




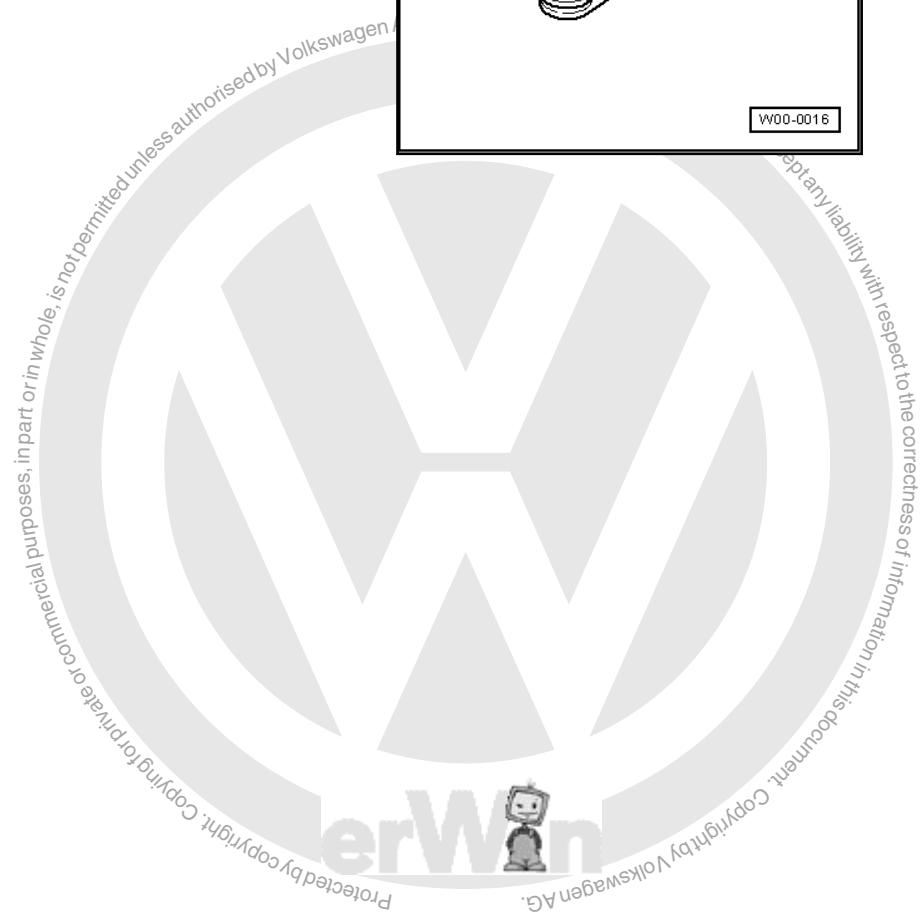
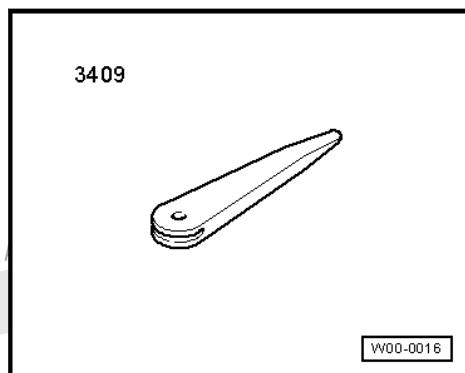
## 6 Special Tools

### Special tools and workshop equipment required

- ◆ Wheel Bolt Cap Pliers -3314-



- ◆ Trim Removal Wedge -VAS 3409-





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<b>3094</b> 	<b>V.A.G 1331</b> 
<b>VAS 6208</b> 	<b>VAS 6362</b> 

W13-10029

- ◆ Hose Clamps - Up To 25mm -3094-
- ◆ Torque Wrench 5-50 Nm -V.A.G 1331-
- ◆ Shop Crane - Drip Tray -VAS 6208-
- ◆ Spring-type clip pliers -VAS 6362-

## Cautions & Warnings

Please read these **WARNINGS** and **CAUTIONS** before proceeding with maintenance and repair work. You must answer that you have read and you understand these **WARNINGS** and **CAUTIONS** before you will be allowed to view this information.

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described in this manual, we suggest you leave such repairs to an authorized Volkswagen retailer or other qualified shop. We especially urge you to consult an authorized Volkswagen retailer before beginning repairs on any vehicle that may still be covered wholly or in part by any of the extensive warranties issued by Volkswagen.
- Disconnect the battery negative terminal (ground strap) whenever you work on the fuel system or the electrical system. Do not smoke or work near heaters or other fire hazards. Keep an approved fire extinguisher handy.
- Volkswagen is constantly improving its vehicles and sometimes these changes, both in parts and specifications, are made applicable to earlier models. Therefore, part numbers listed in this manual are for reference only. Always check with your authorized Volkswagen retailer parts department for the latest information.
- Any time the battery has been disconnected on an automatic transmission vehicle, it will be necessary to reestablish Transmission Control Module (TCM) basic settings using the Volkswagen Factory Approved Scan Tool (ST).
- Never work under a lifted vehicle unless it is solidly supported on stands designed for the purpose. Do not support a vehicle on cinder blocks, hollow tiles or other props that may crumble under continuous load. Never work under a vehicle that is supported solely by a jack. Never work under the vehicle while the engine is running.
- For vehicles equipped with an anti-theft radio, be sure of the correct radio activation code before disconnecting the battery or removing the radio. If the wrong code is entered when the power is restored, the radio may lock up and become inoperable, even if the correct code is used in a later attempt.
- If you are going to work under a vehicle on the ground, make sure that the ground is level. Block the wheels to keep the vehicle from rolling. Disconnect the battery negative terminal (ground strap) to prevent others from starting the vehicle while you are under it.
- Do not attempt to work on your vehicle if you do not feel well. You increase the danger of injury to yourself and others if you are tired, upset or have taken medicine or any other substances that may impair you or keep you from being fully alert.
- Never run the engine unless the work area is well ventilated. Carbon monoxide (CO) kills.
- Always observe good workshop practices. Wear goggles when you operate machine tools or work with acid. Wear goggles, gloves and other protective clothing whenever the job requires working with harmful substances.
- Tie long hair behind your head. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.
- Do not re-use any fasteners that are worn or deformed in normal use. Some fasteners are designed to be used only once and are unreliable and may fail if used a second time. This includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual - replace these fasteners with new parts where indicated, and any other time it is deemed necessary by inspection.

## Cautions & Warnings

- Illuminate the work area adequately but safely. Use a portable safety light for working inside or under the vehicle. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.
- Friction materials such as brake pads and clutch discs may contain asbestos fibers. Do not create dust by grinding, sanding, or by cleaning with compressed air. Avoid breathing asbestos fibers and asbestos dust. Breathing asbestos can cause serious diseases such as asbestosis or cancer, and may result in death.
- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.
- Before starting a job, make certain that you have all the necessary tools and parts on hand. Read all the instructions thoroughly; do not attempt shortcuts. Use tools that are appropriate to the work and use only replacement parts meeting Volkswagen specifications. Makeshift tools, parts and procedures will not make good repairs.
- Catch draining fuel, oil or brake fluid in suitable containers. Do not use empty food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store the oily rags, which can ignite and burn spontaneously.
- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these tools to tighten fasteners, especially on light alloy parts. Always use a torque wrench to tighten fasteners to the tightening torque listed.
- Keep sparks, lighted matches, and open flame away from the top of the battery. If escaping hydrogen gas is ignited, it will ignite gas trapped in the cells and cause the battery to explode.
- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond, or lake. Consult local ordinances that govern the disposal of wastes.
- The air-conditioning (A/C) system is filled with a chemical refrigerant that is hazardous. The A/C system should be serviced only by trained automotive service technicians using approved refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar with regulations governing the discharging and disposal of automotive chemical refrigerants.
- Before doing any electrical welding on vehicles equipped with anti-lock brakes (ABS), disconnect the battery negative terminal (ground strap) and the ABS control module connector.
- Do not expose any part of the A/C system to high temperatures such as open flame. Excessive heat will increase system pressure and may cause the system to burst.
- When boost-charging the battery, first remove the fuses for the Engine Control Module (ECM), the Transmission Control Module (TCM), the ABS control module, and the trip computer. In cases where one or more of these components is not separately fused, disconnect the control module connector(s).
- Some of the vehicles covered by this manual are equipped with a supplemental restraint system (SRS), that automatically deploys an airbag in the event of a frontal impact. The airbag is operated by an explosive device. Handled improperly or without adequate safeguards, it can be accidentally activated and cause serious personal injury. To guard against personal injury or airbag system failure, only trained Volkswagen Service technicians should test, disassemble or service the airbag system.

## Cautions & Warnings

- Do not quick-charge the battery (for boost starting) for longer than one minute, and do not exceed 16.5 volts at the battery with the boosting cables attached. Wait at least one minute before boosting the battery a second time.
- Never use a test light to conduct electrical tests of the airbag system. The system must only be tested by trained Volkswagen Service technicians using the Volkswagen Factory Approved Scan Tool (ST) or an approved equivalent. The airbag unit must never be electrically tested while it is not installed in the vehicle.
- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire that may have been inflated using an aerosol tire inflator. Keep sparks, open flame or other sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times before breaking the bead from the rim. Completely remove the tire from the rim before attempting any repair.
- When driving or riding in an airbag-equipped vehicle, never hold test equipment in your hands or lap while the vehicle is in motion. Objects between you and the airbag can increase the risk of injury in an accident.

**I have read and I understand these Cautions and Warnings.**

